

مَتْنُ الرِّسَالَةِ

THE TEXT OF THE PRIMER



The Logic of Athir al-Dīn al-Abharī

- [1] The shaykh, erudite *imām*, best of the post-classical [scholars], model for the rooted philosophers, Athir al-Dīn al-Abharī, may God make his resting place pleasant and make paradise his final abode, said: “We thank God the exalted for granting success, ask Him for guidance on His path, and we send prayers upon Muḥammad and the entirety of his kin.”
- [2] To proceed, this is a treatise in logic. We have conveyed in it what must be understood in order to begin studying any part of the sciences while depending on God, as He is the most generous source of goodness and abundance.

الْمَنْطِقُ لِأَثِيرِ الدِّينِ الْمُقَصِّلِ بْنِ عَمْرِو الْكَبْهَرِيِّ

- [١] قَالَ الشَّيْخُ الْإِمَامُ الْعَامَّةُ أَفْضَلُ الْمُتَأَخِّرِينَ، قُدْوَةُ الْحُكَمَاءِ الرَّاسِخِينَ أَثِيرُ الدِّينِ الْكَبْهَرِيُّ، صَلَّيْبُ اللَّهِ تَرَاهُ، وَتَجَعَلِ الْجَنَّةَ مَثْوَاهُ؛ نَحْمَدُ اللَّهَ تَعَالَى عَلَى تَوْفِيقِهِ، وَنَسْأَلُهُ هِدَايَةَ طَرِيقِهِ، وَنُصَلِّي عَلَى مُحَمَّدٍ وَعَشِيرَتِهِ أَجْمَعِينَ.
- [٢] أَمَّا بَعْدُ: فَهَذِهِ رِسَالَةٌ فِي الْمَنْطِقِ، أَوْرَدْنَا فِيهَا مَا يَجِبُ الشَّيْخَاضَاتِهَا لِمَنْ يَبْتَدِئُ فِي تَحْقِيقِ مِنَ الْعُلُومِ مُسْتَعِينًا بِاللَّهِ إِنَّهُ مُفَيْضُ الْخَيْرِ وَالْجُودِ.

TRANSLATION

The Logic of Athir al-Dīn al-Abharī

- [1] The shaykh, erudite *imām*, best of the post-classical [scholars], model for the rooted philosophers, Athir al-Dīn al-Abharī, may God make his resting place pleasant and make paradise his final abode, said: “We thank God the exalted for granting success, ask Him for guidance on His path, and we send prayers upon Muḥammad and the entirety of his kin.”
- [2] To proceed, this is a treatise on logic. We have conveyed in it what must be understood in order to begin studying any part of the sciences while depending on God, as He is the most generous source of goodness and abundance.

EXPLANATORY NOTES

In beginning to read classical texts, it is not uncommon for many to hasten through what is known as the *basmala*, *ḥamdala*, and *ṣabwala*. This standard format appears at the beginning of classical texts; it is composed of an invocation of God (*basmala*; lit., “in the name of God”), an expression of gratitude to God (*ḥamdala*; lit., “praise be to God”), and sending blessings on the Prophet Muḥammad (*ṣabwala*; lit., “may the peace and blessings of God be on him”). Notably, no two texts have an identical *ḥamdala* and *ṣabwala*. The *ḥamdalas* and *ṣabwalas* of classical texts served at least two functions. First, in many ways they are analogous to a modern ISBN number, and can be a way of distinguishing texts. Encyclopedic lists of books like that of the renowned Ottoman scholar Katip Çelebi often list the *ḥamdala* and

ṣabwala of a text to clarify a work’s identity. Second, the *ḥamdalas* and *ṣabwalas* of a text often serve as a signature or “fingerprint” of the authors themselves. In this segment of a text, the author often used words and phrases that indicate his stream of thought or his position on a controversial theological matter. There are often poetic wordplays and other clues that indicate the author’s intent in writing the text. In some ways, these parts of premodern texts resemble the preface of a modern text, in the sense that both reveal information about the author’s perspective and rationale in writing a book.

The invocations in the introduction of this text are notably brief, as compared to that of others works (in general). The transmitter of the text gives Athir al-Dīn al-Abharī titles such as, “the polymath (*‘allāma*) and foremost scholar of the post-classical era.” This indicates that al-Abharī was respected enough in stature to receive the honorific title *‘allāma*, which is used to refer to those with extensive erudition in a variety of fields of knowledge. The term *muta’akkhkhīrīn* indicates that the followers of al-Abharī recognized a clear distinction between the classical (*mutaqaḍḍimīn*) Ash’arī theologians who maintained al-Juwaynī’s model of theology and the post-classical (*muta’akkhkhīrīn*) Ash’arī theologians who followed the blueprint of al-Rāzī, whose discussions of theology restructured *kalām* texts to address questions raised by ancient philosophy, as discussed in the introduction. The next phrase, “the model for the rooted philosophers,” seems to be a response to those who objected to the study of philosophy on religious grounds. His being “rooted” (*rāshkhīn*) asserts al-Abharī’s foundational place in mainstream Islamic theology.

Another noteworthy element of this invocation is al-Abharī’s statement that his treatise in logic is intended as a primer for those who wish to study other Islamic (sciences). This statement is designed to remind readers of the importance of logic as a tool to comprehend other fields, such as jurisprudence (*fiqh*) and theology. He also reminds the reader that ultimately, success in the study of logic is achieved through divine facilitation. This is a significant illustration of the

harmony that existed between faith and reason, or what we may call “religion and science,” in the Islamic intellectual tradition. Invoking God in works that we describe as related to science and reason was a normative practice in classical Islamic texts, whose writers themselves were most often devout Muslims.¹

¹ Note that the Islamic world never experienced a split between the divine and mundane worlds, or between religious/spiritual matters and science, knowledge, philosophy, etc. and therefore, in this sense, cannot be compared to European intellectual traditions.

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إِسْأَعُوْجِي

[٣] الْقَلْبُ الدَّلِيلُ بِالْوُضْعِ، يُدَلُّ عَلَى شَيْءٍ مَا وَضِعَ لَهُ بِالْمُطَابَقَةِ، وَعَلَى جُزْئِهِ

بِالتَّعْطِشِ إِنْ كَانَ لَهُ جُزْءٌ، وَعَلَى مَا يَلْزِمُهُ فِي الدُّخَانِ بِالإِلْتِمَامِ، كَالإِنْسَانِ

فَإِنَّهُ يُدَلُّ عَلَى الْحَيَوَانِ النَّاطِقِ بِالنَّظَائِقَةِ، وَعَلَى أَحَدِهِمَا بِالنَّطْقِ، وَعَلَى

قَابِلِ الْعِلْمِ وَصَلَةِ الْكِتَابَةِ بِالإِلْتِمَامِ.

[٤] ثُمَّ الْقَلْبُ: إِنَّمَا مَقْرُونٌ: وَهُوَ الَّذِي لَا يُرَادُّ بِالْجُزْءِ مِنْهُ دَلَالَةٌ عَلَى جُزْءٍ مَعْنَاهُ،

كَالْإِنْسَانِ. وَإِنَّمَا مَوْلُفٌ: وَهُوَ الَّذِي لَا يَكُونُ كَمِثْلِكَ، كَرَامِي الْحِجَابَةِ.

[٥] وَالْمَقْرُونُ: إِنَّمَا كُنِيَ: وَهُوَ الَّذِي لَا يَمْنَعُ نَفْسَ تَصَوُّرِ مَفْهُومِهِ عَنْ وَقُوعِ

الشَّرْحَةِ بَيْنَ تَتَابُؤِهِ، كَالْإِنْسَانِ. وَإِنَّمَا جُزْئِيٌّ: وَهُوَ الَّذِي يَمْنَعُ نَفْسَ تَصَوُّرِ

مَفْهُومِهِ عَنْ ذَلِكَ، كَمِثْلِكَ.

TRANSLATION

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- [6] Furthermore, a **universal** [expression] is either **essential** (*dhātī*), which means it constitutes the essential nature of each of [the] particulars [included in this universal term], such as [the word] “animal” in relation to “human” and “horse.” Or [a universal expression] is **accidental** (*‘araḍī*), which means it contradicts this [principle mentioned above], such as laughing in relation to humans.
- [7] The **essential** can be used as an answer to what something is in terms of a [broadly] shared identity, such as the term animal in relation to humans and horses. And this is [called] a **genus** (*jūs*). [A genus] is described as a universal [property] that can be said of a variety of entities that differ in their true natures, [in] answer to [the question] of what it is.
- [8] Alternatively, a [term] with both shared and specialized [properties] can be said to be an answer to the question, “what is it.” For example, [one might use the word] “human” in reference to both Zayd and ‘Amr. This is [called] the **species** (*naẓ*). It is described as a universal [term] that can be applied to numerous entities that do not differ in their true nature, [in] answer to [the question] of what it is.
- [9] Or it could be that [one is not] responding [to the question] “what is it,” but is instead responding to [the question] “what thing is it, in its essence?” This is what distinguishes it from other things it shares a genus with, such as [the quality of being] “rational,” in regard to humans. This is called **differentia** (*faṣṭ*). It is described as a universal [property] that refers to an entity [in] answer to [the question] of “what is it in essence.”

- [٦] وَالْكَلْبُ: إِمَّا ذَاتِيٌّ، وَهُوَ الَّذِي يَدْخُلُ فِي حَقِيقَةِ حُرِّيَّاتِهِ، كَالْحَيَوَانِ وَالنَّسَبِ إِلَى الْإِنْسَانِ وَالْفَرَسِ. وَإِمَّا عَرَضِيٌّ، وَهُوَ الَّذِي يَخَالِفُهُ، كَالضَّاحِكِ بِالنَّسَبِ إِلَى الْإِنْسَانِ.
- [٧] وَالذَّاتِيٌّ: إِمَّا مَقُولٌ فِي جَوَابِ مَا هُوَ بِحَسَبِ الشَّرَكَةِ الْمُخَصَّصَةِ، كَالْحَيَوَانِ بِالنَّسَبِ إِلَى الْإِنْسَانِ وَالْفَرَسِ، وَهُوَ الْجِنْسُ؛ وَتُرْسَمُ بِاللَّهِ كُلُّ مَقُولٍ عَلَى كَثِيرِينَ مُخْتَلِفِينَ بِالْحَقَائِقِ فِي جَوَابِ مَا هُوَ.
- [٨] وَإِمَّا مَقُولٌ فِي جَوَابِ مَا هُوَ بِحَسَبِ الشَّرَكَةِ وَالْخُصُوصِيَّةِ مَعًا، كَالْإِنْسَانِ بِالنَّسَبِ إِلَى زَيْدٍ وَعَمْرٍو، وَهُوَ النُّوعُ؛ وَتُرْسَمُ بِاللَّهِ كُلُّ مَقُولٍ عَلَى كَثِيرِينَ مُخْتَلِفِينَ بِالْعَدَدِ دُونَ الْحَقِيقَةِ فِي جَوَابِ مَا هُوَ.
- [٩] وَإِمَّا غَيْرُ مَقُولٍ فِي جَوَابِ مَا هُوَ، نَلَّ مَقُولٌ فِي جَوَابِ أَيِّ شَيْءٍ هُوَ فِي ذَاتِهِ، وَهُوَ الَّذِي يَتَمَيَّزُ الشَّيْءَ عَمَّا يُشَارِكُهُ فِي الْجِنْسِ، كَالنَّاطِقِ بِالنَّسَبِ إِلَى الْإِنْسَانِ، وَهُوَ الْفَصْلُ؛ وَتُرْسَمُ بِاللَّهِ كُلُّ يَفَاكٌ عَلَى الشَّيْءِ فِي جَوَابِ أَيِّ شَيْءٍ هُوَ فِي ذَاتِهِ.

TRANSLATION

- [6] Furthermore, a **universal** [expression] is either **essential** (*dhātī*), which means it constitutes the essential nature of each of [the] particulars [included in this universal term], such as [the word] “animal” in relation to “human” and “horse.” Or [a universal expression] is **accidental** (*‘araḍī*), which means it contradicts this [principle mentioned above], such as laughing in relation to humans.⁵

EXPLANATORY NOTES

Substances and Accidents: *Jawhar*, *dhāt*, and *‘araḍī*

Muslim philosophers classified the modes of being into that of *jawhar*, *dhāt*, and *‘araḍī*. Ibn Sīnā devoted a significant proportion of his writing to the topic of existence (*wujūd*) as it pertains to God, the universe, and the world. The various arguments for the existence of God were presented in different ways by a vast number of philosophical theologians or *kalām* specialists who built on the ideas presented by Ibn Sīnā in his *Shifā’*. In al-Abhari’s treatise on logic, he introduces the concepts of substances and accidents as he would to a beginning student in the field of Islamic studies.

This theory of the way things can exist is rooted in Aristotelian logic, which states that all things can either exist “in themselves” or must depend on the existence of another entity in order to “exist in others.” Things like humans, trees, and cars can be considered to exist

⁵ Laughing can be a quality of some humans but it is not essential to their humanity and therefore it is an accident (*‘araḍī*).

in themselves without depending on the existence of another thing to make them exist. This is known as a primary substance (*jawhar*). Entities such as “red,” “fifty pounds,” and “small” must have another object in which they exist. A shirt can be red, a boy can be fifty pounds, and a car can be small. None of these things can exist independently in themselves. It is not possible to see fifty pounds walking down a street or red floating around a room. Their existence is dependent on the substance that they inhabit. Such properties that are dependent on a substance to exist are called accidents (*‘araḍī*).

Substances are also divided into two types: Primary and secondary. Primary substances are the specific individual things that are being referred to, such as Zayd. Secondary substances are universal properties that give a thing its intrinsic nature. The secondary substance of Zayd is humanity. It is a shared idea that people have, that makes a car still a car, or makes a man still a man, despite their various accidents, like shape, color, and appearance. This shared “carness,” “manness,” “animality,” “treeness,” etc. are known as secondary substances (*dhāt*). These secondary substances are also the *essence* of things, that is, this is what gives them their identity and makes them what they are (*māhiyya*). The essence that makes a thing what it is, is referred to as “quiddity,” which is the usual translation of *māhiyya*. Hence, in English texts, the words *dhāt* and *essence* (which can be another aspect of an object’s “whatness” or quiddity) are often used interchangeably. In later studies in metaphysics and theology, we can see that theologians and philosophers emphasize the terms *dhāt* and *māhiyya* in different ways to describe the existences of substances. While all of this may seem obscure to a non-specialist, understanding these concepts is essential to reading later theological texts that discuss topics such as the oneness of God, God’s attributes, and the relationship of the world to the divine.

The Ten Categories of Being (*maqūlāt*)

The ten categories of being are intellectual tools we can use to think about topics related to Islamic philosophy and theology. These

categories originated in the works of Ibn Sīnā, who utilized Aristotle’s writings in his *Categories* to list the ways in which a substance or accidents can be said to exist (*maqūlāt*).⁶ The Arabic term *maqūlāt* comes from the root q-w-l which means to speak (*maqūlāt* should not be confused with the term *ma’qūlāt*, which refers to another concept known as intelligibles).

The first of the ten categories by which to describe something as existing is as a substance. The other nine categories describe ways that accidents can exist based on their relationship to a substance. The ten categories are as follows.

- Substance (*jawhar*)**: “Whatness” (*māhiyya*) or the essence of an object. This is what makes it what it is.
- Quantity (*kammiyya*)**: How many? How much? For example, when we say “two apples,” two is an accident whose existence is dependent on the existence of the apples, which are substances.
- Quality (*hayfiyya*)**: This is the qualification of a thing that includes accidents such as a state (pleasant), color (red), and shape (square).
- Relation (*idāfa*)**: This is the relational connections between objects; for example, on top of, after, or before.
- Action (*fi’l*)**: This specifies what a substance is doing; for example, walking, talking, or praying.
- Affective (*‘ayfiyya*)**: This is what is being done to a substance; for example, being pressured, broken, or mended.
- Location (*makān*)**: This is the place where a substance is located; for example, at school, in the United States, or in a car.

⁶ Early Arab logicians used the Greek term *kategorías* in Arabic (in their translation of Aristotle’s *Categories*). Al-Fārābī translated the term as *maqūlāt* (“that which can be said of something”).

- Position (*waḍ’*)**: This refers to the way a substance is positioned; for example, flat, sitting, lying down, resting, or upright.
- Time (*samān*)**: This refers to when a substance is doing something; for example, walking in the morning, or arriving in an hour.
- Possession (*mulkiyya*)**: This is the relation of an object to another with regard to possession; for example, ‘Ā’isha’s raincoat.

Essential (*dhātī*) and Accidental (*‘araḍī*) Properties

A universal (*kullī*) word used to describe a thing can be a property that is **essential** (*dhātī*) to its identity as that thing or it can be a property that is **incidental** (i.e., not essential to its identity). The non-essential properties are referred to as “accidents” (*‘araḍī*). For example, although the property of being human is universal, in that it can be applied to a wide range of people, it is still essential to Zayd being who he is. If Zayd were not human, he could not be Zayd. By contrast, laughing is an “accidental” property. In that it is not essential to Zayd’s identity that he laugh. Humans are distinguished from other animals in that they have the capacity (*quwwa*) to laugh and actually do laugh. However, laughing is not an essential property that defines one’s humanity. It is an accidental (or perhaps a functionally incidental) property. If Zayd never laughed, he would still be Zayd.

- [7] The **essential** can be used as an answer to what something is in terms of a [broadly] shared identity, such as the term animal in relation to humans and horses. And this is [called] a **genus** (*jūs*). [A genus] is described as a universal [property] that can be said of a variety of entities that differ in their true natures, [in] answer to [the question] of what it is.
- [8] Alternatively, a [term] with both shared and specialized [properties] can be said to be an answer to the question, “what is it.” For example, [one might use the word] “human” in reference to both Zayd and ‘Amr. This is [called] the **species** (*naẓ*). It is described as a universal [term] that can be applied to numerous entities that do not differ in their true nature, [in] answer to [the question], of what it is.
- [9] Or it could be that [one is not] responding [to the question] “what is it,” but is instead responding to [the question] “what thing is it, in its essence?” This is what distinguishes it from other things it shares a genus with, such as [the quality of being] rational, in regard to humans. This is called **differentia** (*faṣṭ*). It is described as a universal [property] that refers to an entity [in] answer to [the question] of “what is it in essence.”

TRANSLATION

EXPLANATORY NOTES

The Five Predicables (*kulliyāt al-khams*)

The *Isagoge* includes discussions about what are known as the five predicables (Latin, *quinque voces*) of traditional logic. The five predicables describe the five ways in which one can refer to something; these ultimately lead to a definition of that entity. These are different from categories, because categories list what (time, quantity, quality) can be said to describe a subject, rather than ways of referring to the same thing—ways that are necessary to *define* it. The five predicables are genus (*jūs*), species (*naẓ*), differentia (*faṣṭ*), property (*khāṣṣa*), and accident (*‘araḍī ṭamm*). Both “property” and “accident” are considered accidental universals for reasons that are explained later.

For example, if we ask, how can we refer to Zayd, we could say that he is an animal or we could be more specific and say that he is a human or we could be even more specific and say that he is a boy, and so on by adding specific accidents to help the listener identify the particular animal who is a human, who is a boy, who is Zayd. This can be confusing because in common language, these too can be described as “categories”—in this case they are categories of specificity. Each of these general and more specific ways of describing Zayd reflect *how* we can refer to Zayd. In Arabic logic these five predicables are known as the “five universals” (*kulliyāt al-khams*). This is because each of the five predicables refers to a universal framework that is shared with other groups (as in genus, species, and differentia) or to accidents that are composed of universal properties that can apply specifically to the entity referenced.

The question “what is it” (*mā huwa*) originally developed from the heuristic inquiry methods proposed by Aristotle in his *Posterior Analytics*; Ibn Sīnā later expanded on these methods in his *Shifā’*.⁷

⁷ Aristotle challenged his teacher Plato’s theory of knowledge which divided ways of knowing into that which is visible vs. that which is intelligible.

Muslim thinkers have examined, among other questions, the connection between existence (*wujūd*) and its “whatness” or quiddity (*māhiyya*). The quiddity (or lack thereof) of God’s existence (*wujūd*) in contrast to human existence is a foundational matter of debate in Islamic theology (*kalām*) and its conception of Islamic monotheism.

Thus, we see al-Abhari identifying what makes something what it is by describing shared traits of similar objects; these in turn portray the cognitive frameworks by which a specific thing is known (that is, through its different forms of affiliation with each of the five predicables). For instance, humans and horses are both animals (a genus) because they share the quality of being living beings (unlike clouds or rocks). Zayd and ‘Amr, by contrast, are both described as “human” (a species) based on their shared trait of being rational animals.

Differentia (*faṣṭ*) is an attribute that distinguishes one species of things from another. This thing that distinguishes it is said to be an essential quality or an essential “difference” that answers the question “which is it” rather than “what is it?” For instance, once we have further defined that Zayd is an animal (genus) and a human (species), we need another way to describe Zayd to distinguish him from ‘Amr or ‘Ā’isha. For example, if ‘Amr and ‘Ā’isha have different mothers, his distinguishing trait is that he is the son of Maryam. This makes “son of Maryam” a differentia in this case.

Aristotle objected to Plato’s view that sensory knowledge was lesser in its reality and truth than types of knowledge that are derived through thought and philosophical understanding. Aristotle offered an alternative method of acquiring knowledge; namely, through demonstrative science, which held that information gathered from the sensory world is more true than theory and ideas that reside in the mind’s perception.

[10] As for accidental [universals], their separation from the quiddity (*māhiya*) [of an entity] is inhibited and this is an **attached accident** (*ʿaraḍ lāzim*), or their separation is not inhibited and this is a **detached accident** (*ʿaraḍ al-mufāriq*). Each of these two [types of accidents] is specific to one true nature and this is the **property** (*khāṣṣa*). For example, [this could be] the capacity (*quwwa*) and act (*fiʿl*) of laughing in relation to a human. It [laughter] is described as a universal that can be attributed to those with a single true nature [i.e., humans] as an accidental trait.

[11] Or it [the accidental universal] can be attributed to more than one true nature [e.g., not exclusively to humans] and is therefore a **general accident** (*ʿaraḍ ʿamm*). This is like breathing in [terms of] capacity (*quwwa*) and action (*fiʿl*) for humans and [for] others from [among] the animals. This [accidental universal] is described as a universal that can be applied to a variety of true natures (*ḥaqāʾiq*) as an accidental trait.

[١٠] وَأَمَّا الْعَرَضِيُّ؛ فَإِمَّا أَنْ يَمْتَنِعَ الْفِكَائُهُ عَنِ الْمَاهِيَةِ وَهُوَ الْعَرَضُ اللَّازِمُ،

أَوْ لَا يَمْتَنِعَ وَهُوَ الْعَرَضُ الْمُفَارِقُ. وَكُلُّ وَاحِدٍ مِنْهُمَا إِذَا أَنْ يَخْتَصَّ

بِحَقِيقَةٍ وَاحِدَةٍ، وَهِيَ الْخَاصَّةُ، كَالصَّاحِبِ بِالْقُوَّةِ وَبِالْفِعْلِ، بِالنَّسَبَةِ إِلَى

الْإِنْسَانِ. وَيُرْسَمُ بِأَنَّهَا كَلْبِيَّةٌ تُقَالُ عَلَى مَا تَحْتَ حَقِيقَةٍ وَاحِدَةٍ فَقَطُّ قَوْلُهُ

عَرَضِيًّا.

[١١] وَإِمَّا أَنْ يَتِمَّ حَقَائِقُ قُوَّةٍ وَاحِدَةٍ، وَهُوَ الْعَرَضُ الْعَامُّ، كَالْمُتَنَفِّسِ بِالْقُوَّةِ

وَبِالْفِعْلِ لِلْإِنْسَانِ وَعَنْزِهِ مِنَ الْحَيَوَانَاتِ. وَيُرْسَمُ بِأَنَّهُ كُنِيَ يُقَالُ عَلَى مَا

تَحْتَ حَقَائِقَ مُخْتَلِفَةٍ قَوْلُهُ عَرَضِيًّا.

TRANSLATION

[10] As for accidental [universals], their separation from the quiddity (*māhiya*) [of an entity] is inhibited and this is an **attached accident** (*ʿaraḍ lāzim*), or their separation is not inhibited and this is a **detached accident** (*ʿaraḍ al-mufāriq*). Each of these two [types of accidents] is specific to one true nature and this is the **property** (*khāṣṣa*). For example, [this could be] the capacity (*quwwa*) and act (*fiʿl*) of laughing in relation to a human. It [laughter] is described as a universal that can be attributed to those with a single true nature [i.e., humans] as an accidental trait.

[11] Or it [the accidental universal] can be attributed to more than one true nature [e.g., not exclusively to humans] and is therefore a **general accident** (*ʿaraḍ al-ʿamm*). This is like breathing in [terms of] capacity (*quwwa*) and action (*fiʿl*) for humans and [for] others from [among] the animals. This [accidental universal] is described as a universal that can be applied to a variety of true natures (*ḥaqāʾiq*) as an accidental trait.

EXPLANATORY NOTES

As noted, an accident (*ʿaraḍ*) is a trait that is not essential to the object's identity (i.e., quiddity, *māhiya*). A trait is considered universal because it is a non-essential property that can be applied to a variety of objects, not only the specific object described. Accidents can be specific (*khāṣṣ*) to one group of many individuals that fit into this group, or accidents can be general (*ʿamm*) and apply to individual entities in the group as well as others outside it. An accident that is specific to one group

is known as a property (*khāṣṣa*) in the context of the five predicables (*kulliyāt al-khams*). Al-Abhari uses the term specific accident (*ʿaraḍ khāṣṣa*) to convey this general idea.

A detached specific accident (*ʿaraḍ khāṣṣ mufāriq*) is one that can be separated from the object described, as in al-Abhari's example of a laughing human. Laughter is universal to many humans and not just the specific person described, therefore it is a universal. It is specific enough that (according to this text), laughter can only be applied to humans and therefore it defines a particularity of the true nature (*ḥaqāʾiq*) of humans while still being universal or common enough that it can potentially be applied to every human on the planet. Therefore, we can still say that laughter is a universal (*kullī*) trait. Laughter is also non-essential or non-conditional for a human to be human. Therefore, it is an accident (*ʿaraḍ*).

The term *ḥaqāʾiq* ("true nature") refers to a group of the same things, a group whose "sameness" is based on the true nature of those entities. Thus, despite the many differences among humankind, humans still possess a true nature that places them in the category of humans. Al-Abhari is examining the accidents—both specific (*khāṣṣ*) and general (*ʿamm*)—that apply to the true nature (*ḥaqāʾiq*) of humans.

Thus, accidents are further divided into general and specific. A general accident (*ʿaraḍ ʿamm*), like breathing, is a property that Zayd shares with other non-humans, like horses and cats. Furthermore, breathing is considered an accidental (*ʿaraḍī*) universal and not an essential (*dhātī*) property that defines Zayd's humanity because it is not an essential property that distinguishes Zayd or humans as human.

However, the capacity (*quwwa*) to breathe is necessary to Zayd's staying alive. This makes the *potentiality* to breathe an inseparable general accident (*ʿaraḍ ʿamm lāzim*). However, in terms of action (*fiʿl*), it is possible for Zayd to hold his breath for a while. Thus, the act of breathing is separate, making it a separate general accident (*ʿaraḍ ʿamm mufāriq*).

By contrast, laughing is an accident in that it does not define one's humanity. Yet, it is still considered unique to humans. Therefore, laughter is a specific accident (*ʿaraḍ khāṣṣ*), that is, a non-essential property specific to humans. There is yet another dimension to this.

The act (*fiʿl*) of laughter is not necessary for an individual human like Zayd. It is only his capacity (*quwwa*) to laugh that is deemed necessary and thus the accident is attached (*lāzim*) to Zayd's identification as a human. That is, it is entirely possible for Zayd to be completely serious and never laugh in his entire life, despite his human capacity to laugh. This makes the *act* (*fiʿl*) of laughter a specific separable accident (*ʿaraḍ khāṣṣ mufāriq*). However, the accidental property related to laughter that is inseparable from Zayd is his capacity or potential (*quwwa*) to laugh. Thus, even though he may never actually laugh, one of his uniquely human traits is that he has the ability to laugh, unlike fish or cats who do not have the capacity to laugh and have not ever laughed in actuality. This makes the capacity (*quwwa*) to laugh a specific inseparable accident (*ʿaraḍ khāṣṣ lāzim*) while the act (*fiʿl*) of laughter remains a specific separable accident (*ʿaraḍ khāṣṣ mufāriq*).⁸

This is illustrated below.

Universals

1. Essential (*dhātī*)

a. **Genus** (*jins*): e.g., using "animal" to refer to humans

b. **Species** (*nawʿ*): e.g., humans

c. **Differentia** (*faṣl*): e.g., "rational" in reference to humans

2. Accidental

a. **Property** (*khāṣṣa*)

i. Separable (*mufāriq*): e.g., the act (*fiʿl*) of laughing with regard to humans

⁸ al-Maghniṣī, *Mughnī al-ṭullāb*, 114–119.

ii. Inseparable (*lāzim*): e.g., the capacity (*quwwa*) to laugh with regard to humans

b. **General Accidents** (*ʿaraḍ ʿamm*)

i. Separable (*mufāriq*): e.g., the act (*fiʿl*) of breathing with regard to humans

ii. Inseparable (*lāzim*): e.g., the capacity (*quwwa*) to breathe with regard to humans

Expository Statement

[12] **Definition** (*hadd*): A statement that signifies the quiddity (*māhiya*) of a thing. It is composed of the close genus (*jins*) and close differentia (*faṣl*) such as “rational animal” to [define] a human. This is also a **complete definition** (*hadd al-tāmm*).

[13] **Incomplete Definition** (*al-ḥadd al-nāqis*): It is composed of a distant genus of a thing and a close differentia, such as “rational body” in reference to a human.

[14] **Complete Description** (*al-rasm al-tāmm*): It is composed of a close genus and a specific inseparable property (*khawāssihī al-lāzima*) such as a “laughing animal” to define a human.

[15] **Incomplete Description** (*al-rasm al-nāqis*): It is composed of accidents whose combinations are specific to one true nature. For example, describing a human by saying that he walks on two feet, [he has] wide nails, a hairless body, [he] stands upright, and laughs by nature.

الْقَوْلُ الشَّارِحُ

[١٢] الحَدُّ: قَوْلٌ ذَالٌ عَلَى مَا هِيَئَةِ الشَّيْءِ، وَهُوَ الَّذِي يَتَرَكَّبُ مِنْ جُنْسٍ الشَّيْءِ

وَفَضْلِهِ الْقَرِيبَيْنِ، كَالْحَيَوَانِ النَّاطِقِ بِالنَّسَبَةِ إِلَى الْإِنْسَانِ. وَهُوَ الْحَدُّ

الْتَّامُّ.

[١٣] وَالْحَدُّ النَّاقِضُ : وَهُوَ الَّذِي يَتَرَكَّبُ مِنْ جُنْسٍ الشَّيْءِ الْبَعِيدِ وَفَضْلِهِ

الْقَرِيبِ، كَالْجِسْمِ النَّاطِقِ بِالنَّسَبَةِ إِلَى الْإِنْسَانِ.

[١٤] وَالرَّسْمُ التَّامُّ: وَهُوَ الَّذِي يَتَرَكَّبُ مِنْ جُنْسٍ الشَّيْءِ الْقَرِيبِ وَخَوَاصِّهِ

الْأَزَوَّةِ، كَالْحَيَوَانِ الصَّاحِكِ فِي تَعْرِيفِ الْإِنْسَانِ.

[١٥] وَالرَّسْمُ النَّاقِضُ: وَهُوَ الَّذِي يَتَرَكَّبُ مِنْ عَرَضِيَّاتٍ تَخْتَصُّ بِجُمْلَتِهَا

بِحَقِيقَةٍ وَاحِدَةٍ، كَقَوْلِنَا فِي تَعْرِيفِ الْإِنْسَانِ: إِنَّهُ مَائِسٌ عَلَى قَدَمَيْهِ،

عَرِضٌ الْأَعْطَافِ، بَادِي الْبَشَرَةِ، مُسْتَقِيمُ الْقَامَةِ، صَحَّاحٌ بِالطَّلْبِ.

TRANSLATION

Expository Statement

[12] **Definition** (*hadd*): A statement that signifies the quiddity (*māhiya*) of a thing. It is composed of the close genus (*jins*) and close differentia (*faṣl*) such as “rational animal” to [define] a human. This is also a **complete definition** (*hadd al-tāmm*).

[13] **Incomplete Definition** (*al-ḥadd al-nāqis*): It is composed of a distant genus of a thing and a close differentia, such as “rational body” in reference to a human.

[14] **Complete Description** (*al-rasm al-tāmm*): It is composed of a close genus and a specific inseparable property (*khawāssihī al-lāzima*) such as “laughing animal” to define a human.

[15] **Incomplete Description** (*al-rasm al-nāqis*): It is composed of accidents whose combinations are specific to one true nature. For example, describing a human by saying that he walks on two feet, [he has] wide nails, a hairless body, [he] stands upright, and laughs by nature.

EXPLANATORY NOTES

A definition that is complete describes exactly what an object is by using the closest genus possible and a specific difference, as a distinguishing feature to exclude the possibility of it being an alternative object. As mentioned in the text, a genus is described as a universal category that can be applied to a variety of entities that differ in their true nature (*mukhtalifin bi-l-ḥaqāʾiq*), in response to the question “what is it.” A close genus means using a universal category that can

to refer to the object. Instead, we use two or more accidents whose combination refers to the true nature of one particular object. For example, referring to a human by describing him as “he who walks on two feet, has a hairless body, stands upright, and laughs by nature.” The combination of these accidents points to one possible object, namely humans. The combination of these accidents reflects one true nature (*ḥaqīqa wāḥida*), that of humans. The result is another way to refer to humans through a combination of accidents, although this is considered a less precise method and therefore an “incomplete” (*nāqis*) description.

Propositions

- [16] A proposition (*qaḍīyya*) is a statement about which it is valid to say to its claimant that he is truthful or untruthful [i.e., in his statement]. Additionally, it is either a categorical proposition (*ḥamlīyya*), as in the phrase: "Zayd is a writer," or it is a conjunctive conditional proposition (*sharṭīyyatun muṭṭaṣila*), as in the statement: "If the sun has risen, it is daytime." Or it is a disjunctive conditional proposition (*sharṭīyyatun munfaṣila*), as in the statement: "Numbers are either even or odd." The first part of the categorical proposition (*ḥamlīyya*) is known as the subject term (*mawḍūʿ*) and the second [part] is the predicate term (*maḥmūl*). The first part of the conditional [proposition] is termed the antecedent (*muqaddam*) and the second part is the consequent (*tālī*).

- [17] A categorical proposition is either affirmative (*mājība*) as in our statement, "Zayd is a writer," or it is negative (*sālība*), as in our statement, "Zayd is not a writer." Additionally, each of these is either singular (*makhṣūṣa*) as we mentioned or a **quantified universal proposition** (*kullīyya musawwara*), as in our statement, "every human is a writer" and "no human is a writer." Or [each of these propositions is] a **quantified particular proposition** (*juzʿīyya musawwara*), as in our statement, "some humans are writers" and "some humans are not writers." Or it can be unlike these, in which case it is referred to as indefinite (*muhmala*), as in our statement, "the human is a writer" and "the human is not a writer."

الْقَضَايَا

[١٦] الْقَضِيَّةُ: قَوْلٌ يَصِحُّ أَنْ يُقَالَ لِغَايِلِهِ: إِنَّهُ صَادِقٌ فِيهِ أَوْ كَاذِبٌ فِيهِ. وَهِيَ:

إِمَّا حَمَلِيَّةٌ، كَقَوْلُنَا: «زَيْدٌ كَاتِبٌ». وَإِمَّا شَرْطِيَّةٌ مُتَّصِلَةٌ، كَقَوْلُنَا: «إِنْ

كَانَتِ الشَّمْسُ طَالِعَةً فَالْتِهَارُ مُوجُودٌ». وَإِمَّا شَرْطِيَّةٌ مُنْفَصِلَةٌ، كَقَوْلُنَا:

«الْعَدَدُ إِمَّا زَوْجٌ وَإِمَّا فَرْدٌ». وَالْجُزْءُ الْأَوَّلُ مِنَ الْحَمَلِيَّةِ يُسَمَّى مُؤَوِّدًا،

وَالثَّانِي مَحْمُولًا. وَالْجُزْءُ الْأَوَّلُ مِنَ الشَّرْطِيَّةِ يُسَمَّى مُقَدِّمًا، وَالثَّانِي

تَالِيًا.

[١٧] وَالْقَضِيَّةُ: إِمَّا مُوجِبَةٌ، كَقَوْلُنَا: «زَيْدٌ كَاتِبٌ». وَإِمَّا سَالِيَّةٌ، كَقَوْلُنَا: «زَيْدٌ

لَيْسَ بِكَاتِبٍ». وَكُلُّ وَاحِدَةٍ مِنْهُمَا إِمَّا غَضُوصَةٌ كَمَا ذَكَرْنَا، وَإِمَّا كَلِّيَّةٌ

مُسَوَّوَةٌ، كَقَوْلُنَا: «كُلُّ إِنْسَانٍ كَاتِبٌ» وَ «لَا شَيْءَ مِنَ الْإِنْسَانِ بِكَاتِبٍ».

وَإِمَّا جُزْئِيَّةٌ مُسَوَّوَةٌ، كَقَوْلُنَا: «بَعْضُ الْإِنْسَانِ كَاتِبٌ» وَ «بَعْضُ الْإِنْسَانِ

لَيْسَ بِكَاتِبٍ». وَإِمَّا أَنْ لَا يَكُونُ كَذَلِكَ، وَتُسَمَّى مُهْمَلَةً، كَقَوْلُنَا: «الْإِنْسَانُ

كَاتِبٌ» وَ «الْإِنْسَانُ لَيْسَ بِكَاتِبٍ».

TRANSLATION

Propositions

- [16] A proposition (*qaḍīyya*) is a statement about which it is valid to say to its claimant that he is truthful or untruthful [i.e., in his statement]. Additionally, it is either a categorical proposition (*ḥamlīyya*), as in the phrase: "Zayd is a writer," or it is a conjunctive conditional proposition (*sharṭīyyatun muṭṭaṣila*), as in the statement: "If the sun has risen, it is daytime." Or it is a disjunctive conditional proposition (*sharṭīyyatun munfaṣila*), as in the statement: "Numbers are either even or odd." The first part of the categorical proposition (*ḥamlīyya*) is known as the subject term (*mawḍūʿ*) and the second [part] is the predicate term (*maḥmūl*). The first part of the conditional [proposition] is termed the antecedent (*muqaddam*) and the second part is the consequent (*tālī*).

EXPLANATORY NOTES

This section begins with what is known as a *qaḍīyya* or what logicians refer to as a **propositional statement**. To test whether or not a statement is a proposition, we check whether it can be true or false. Statements like the sky is red, this shirt is blue, and bears like honey are all statements that can be either true or false. Examples of statements that cannot be verified or falsified include questions like "How are you?," or imperative statements such as "Lock the door." Propositional statements take three forms which al-Abhari outlines.

The first is what is referred to in English logic texts as a "**categorical proposition**," which al-Abhari refers to as *al-qaḍīyya al-ḥamlīyya*. The

term categorical proposition comes from the concept that each term used in language comes from what is known as a "categorical term." A categorical term is a noun or noun phrase. Zayd and writer are each categorical terms, when examined separately in and of themselves. A proposition links these two terms by claiming a factual relationship between them that can be true or false.

Furthermore, categorical terms in categorical propositions are divided into two further components.

One component is the subject term (*mawḍūʿ*) and the second component is the predicate term (*maḥmūl*). The term *maḥmūl* (from the root ḥ-m-l, "to carry") is preferred over the Arabic grammatical term for predicate (*khabar*) because of the concept of distribution. In a categorical proposition the predicate has information that is "carried over" or distributed to each of the members of the first categorical term, which is the subject. Thus, the predicate is *maḥmūl* ("carried"). In English we say it is "distributed." In the example above, *Zaydun kātibun* ("Zayd is a writer"), *Zayd* is the *mawḍūʿ* (subject), while writer (*kātibun*) is the predicate term (*maḥmūl*). The informative quality of the predicate term, writer (*kātibun*), is "carried over" by distributing information about Zayd.

One may ask, what happens if the propositional statement is a negation, such as, "Zayd is not a writer." In this case, Zayd may still be the subject, but since his status as a writer is denied, is writer still "carrying" a meaning that is being "distributed" to Zayd. Is writer still a *maḥmūl*? Based on commentators on the *Isagoge*, the answer to this question is that the predicate ("is not a writer") still carries or distributes a meaning which is in the negative. That is, "writer" is still considered a *maḥmūl* because it still gives information about Zayd, even if the information is a statement of negation of the predicate (*maḥmūl*). Negative statements are still referred to as composites of a subject (*mawḍūʿ*) and predicate (*maḥmūl*).

A **conjunctive conditional proposition** (*sharṭīyyatun muṭṭaṣila*) means that in a statement, "if A then B," A and B must both be true

in order for the statement to be true. In the example above, "if the sun is in the sky then it is daytime," both the antecedent (A) and the consequent (B) must be true at the same time. Thus the negation of A would also result in the negation of B. So, if the sun is not in the sky, then it is dark or it is not daytime. That is, in a conjunctive conditional proposition, both conjuncts must be true for the entire statement to be true.

A **strong disjunctive conditional proposition** (*sharṭīyyatun munfaṣila*) is a conditional statement in which only one of the two parts of the conditional proposition can be true, and both cannot be true at the same time. For example, a number cannot be both even and odd. It must be either even or odd.

Logicians make a distinction between strong disjunctive propositions in which only one of the parts of the "either/or" statement can be true, as in the conditional statements above, and weak disjunctive propositions that are non-conditional; in these it is possible for both parts of the statement to be true. For example, if we say, "the traveler would like to rest or eat," it is possible for the traveler to both rest and eat. This is categorized as a weak disjunctive proposition because the opposition between the two segments is not imperative.

Additionally, in grammar, conditional sentences are often divided into an "if clause" or condition for the first part and a second part, which is the "main clause" or the result. In logic, the former is referred to as the antecedent (*muqaddam*) and the latter is the consequent (*tālī*). For example, in the sentence "If the sun is out, then it is daytime," "If the sun is out" is the antecedent (*muqaddam*) and "then it is daytime" is the consequent (*tālī*).

TRANSLATION

- [17] A categorical proposition is either affirmative (*mājība*) as in our statement, "Zayd is a writer," or it is negative (*sālība*), as in our statement, "Zayd is not a writer." Additionally, each of these is either singular (*makhṣūṣa*) as we mentioned or a **quantified universal proposition** (*kullīyya musawwara*), as in our statement, "every human is a writer" and "no human is a writer." Or [each of these propositions is] a **quantified particular proposition** (*juzʿīyya musawwara*), as in our statement, "some humans are writers" and "some humans are not writers." Or it can be unlike these, in which case it is referred to as indefinite (*muhmala*), as in our statement, "the human is a writer" and "the human is not a writer."

EXPLANATORY NOTES

The first section refers to what is known as the "quality" of propositions that either affirm or deny something. An affirmative (*mājība*) proposition affirms the connection or equivalence between the subject and the predicate of the categorical proposition. A categorical proposition that is negative (*sālība*) denies the connection or equivalence of the subject and predicate. Al-Abhari states that categorical propositions must be either positive or negative. The two examples provided were "Zayd is a writer" and "Zayd is not a writer."

Each of these statements are then divided into the following three categories.

- 1) **Singular Categorical Propositions** (*qaḍīyya makhṣūṣa*): While al-Abhari uses the term *makhṣūṣa* to mean specified, the technical term used in English in the context of logic is "singular." This

means that the exact subject who is doing something is a specific or singular individual. In the example "Zayd is a writer," Zayd is the specific individual who is identified in this categorical proposition, thus "Zayd" gives it a precise meaning. This means that Zayd, and not Zaynab or Ahmad or anyone else, is referred to as a writer.

- 2) **Quantified Universal Propositions** (*kullīyatun musawwara*): These are statements in which the subject is linked to a universal term that indicates "how much," or what logicians refer to as the "quantity" of something. Subjects of a proposition, such as "all people," or the use of what is known in Arabic grammar as the *lām al-istighrāq*, which is the use of "the" (that is, the indefinite article) to mean the generality of everything that falls under the word that follows "the" is in this category when it is clear that the word "the" (*al-*) is being used in this way. This clarification distinguishes it from indefinite propositions we see below.

In Arabic, the word *musawwara* literally means restricted. It may not seem that words like "all" and "every" are restrictive in meaning, but they are restrictive in the sense of "fencing in" or "surrounding" a subject with a universal term that quantifies it; hence they are *musawwara*. The root s-w-r means to surround or enclose something. This stands in contrast to *qaḍīyya muhmala* (indefinite propositions), as we see later. A more detailed discussion of quantifiers follows.

- 3) **Quantified Particular Propositions** (*juzʿīyya musawwara*): These are categorical statements that partially quantify the subject with a term. For example, "*some* people" or "*one* person" do not specify who the person is; if this were specified, it would be a singular proposition (*makhṣūṣa*).

- [18] Conjunctive [conditional propositions] are either **necessary** (*luzūmīyya*), as in our statement, “if the sun is out then it is daytime” or they are **contingent** (*ittifāqīyya*), as in our statement, “if humans are rational then donkeys bray.” The disjunctive [conditional proposition] is either a strong [disjunctive], as in our statement, “numbers are either even or odd,” and they (the disjuncts) are simultaneously **mutually exclusive and cannot be collectively false** (*mānī’at al-jam’ wa-mānī’at al-khuluww*).
- [19] Or they are only mutually exclusive, as in our statement, “this thing is either a rock or a tree.”
- [20] Or they can only be not collectively false, as in our statement, “Zayd is either in the water or he is not drowning.”
- [21] Disjunctive propositions can also be in three parts, as in our statement, “numbers are either greater [than], lesser [than], or equal [to].”

[١٨] وَالْمُتَّصِلَةُ: إِمَّا لَزُومِيَّةٌ، كَقَوْلِنَا: «إِنْ كَانَتِ الشَّمْسُ طَالِعَةً فَالْيَوْمُ نَهَارٌ»

مَوْجُودٌ». وَإِمَّا اِتِّفَاقِيَّةٌ، كَقَوْلِنَا: «إِنْ كَانَ الْإِنْسَانُ نَاطِقًا فَالْحِمَارُ نَاقِصٌ».

وَالْمُنْفَصِلَةُ: إِمَّا حَقِيقَةً، كَقَوْلِنَا: «الْعَدَدُ إِمَّا زَوْجٌ وَإِمَّا فَردٌ». وَهِيَ مَانِعَةٌ

الْجَنَعِ وَالْخُلُوءِ مَعًا.

[١٩] وَإِمَّا مَانِعَةٌ الْجَنَعِ فَقَطْ، كَقَوْلِنَا: «هَذَا الشَّيْءُ إِمَّا حَجَرٌ أَوْ شَجَرٌ».

[٢٠] وَإِمَّا مَانِعَةٌ الْخُلُوءِ فَقَطْ، كَقَوْلِنَا: «زَيْدٌ إِمَّا أَنْ يَكُونَ فِي الْبَحْرِ وَإِمَّا أَنْ لَا

يَغْرَقَ».

[٢١] وَقَدْ تَكُونُ الْمُتَنَفِّصَاتُ ذَاتَ أَجْزَاءٍ ثَلَاثَةً، كَقَوْلِنَا: «الْعَدَدُ إِمَّا زَائِدٌ أَوْ

نَاقِصٌ أَوْ مُسَاوٍ».

In **contingent propositions**, the subject and predicate are attached to one another by concurrence or accident. This is known in Arabic texts of logic as *ittifāqīyya* which translates, literally, as “concurrence,” though the technical equivalent in English logic is “contingent.” This alludes to the idea that the truth of an antecedent does not necessitate the affirmation or denial of a consequent. The two may not be directly related or their concurrence may be a matter of coincidence rather than a linked cause.

Thus, in the example above, “if humans are rational then donkeys bray,” it is true that humans are rational and it is true that donkeys bray. But humans are rational independently of whether or not donkeys bray. Similarly, donkeys bray whether humans are rational or not. The two conjuncts are linked without a necessary connection between them even though they are both true. The consequent (i.e., donkeys bray) is also contingent, in that this may be absent or present without affecting the truth of the antecedent (i.e., humans are rational).

A **disjunctive conditional proposition** is a statement in which one, some, or none of the disjuncts of the statement can be true. Thus, it is “disjunctive” (*munfaṣila*) as opposed to a conjunctive proposition in which both conjuncts are either true or false. The disjunctive conditional proposition is further divided into what is known in English logic as a strong disjunctive proposition (*haqīqīyya*) and a weak disjunctive proposition. Strong propositions are both mutually exclusive (*mānī’at al-jam’*) and cannot be collectively false (*mānī’at al-khuluww*). Weak disjunctive propositions are mutually exclusive or disjuncts that cannot be collectively false but are not mutually exclusive.

The term mutually exclusive (*mānī’at al-jam’*) means that the two disjuncts in a disjunctive proposition cannot be true at the same time. The truth of one excludes the truth of the other. The term *mānī’at al-khuluww* means that the disjuncts cannot both be false—one has to be true. It is possible to have a weak disjunctive proposition in which the disjuncts cannot both be true and are therefore mutually exclusive, but they can both be false. In the example al-Abharī provides of such a

weak disjunctive, that is, “the thing is either a rock or a tree,” the rock and tree are mutually exclusive. One thing cannot be both a rock and a tree. However, the statement can be collectively false, in that the thing can be neither a rock nor a tree. Thus, this disjunctive proposition is not what is known as *mānī’at al-khuluww*.

Another example of a weak disjunct may be, “the traveler would like to keep driving or sleep.” The two disjuncts are mutually exclusive, as the traveler cannot sleep and drive at the same time. However, the disjuncts can be collectively false. It is possible that the traveler does not want to drive or sleep, but would like to stop for dinner instead.

A weak disjunct could be one that is not mutually exclusive but is not collectively false. Al-Abharī gives the example, “Zayd is in the water, or he is not drowning.” It is possible for both disjuncts to be true; Zayd can be in the water and also not be drowning. Therefore, the disjuncts are not mutually exclusive. However, both disjuncts cannot be false. The only way to drown is to be in the water. Therefore, saying that he is *not* “not drowning” means he is drowning and he cannot at the same time *not* be in the water.⁹ Thus, this disjunctive proposition is collectively false (*mānī’at al-khuluww*) but not mutually exclusive (*mānī’at al-jam’*).

Note that some translate *mānī’at al-khuluww* as “collectively exhaustive.” However, in this context, this is an error. The term “collectively exhaustive” requires that one option out of many must be absolutely true in the way that when rolling dice, the possibilities exhaust each other but one outcome must always be true. This case is not *mānī’at al-khuluww* since it is possible for more than one outcome to be true, unlike the example of dice, in which only one outcome can be true. It is possible for Zayd to be in the water and not drowning. The two disjuncts in the example al-Abharī provides do not collectively exhaust one another.

eating) in a conditional statement, he means that disjunctive conditional propositions are not limited to statements based on paired disjuncts. How the various disjuncts can be true or false is beyond the scope of the examples provided in the *Isagoge*.

[22] Opposition is a difference between two categorical propositions in terms of affirmation or negation such that one of them must be true and the other must be false, as in our statements, "Zayd is a writer" and "Zayd is not a writer." This is not established, except after there is [a complete] equivalence of the subject, predicate, timing, place, relationship, capacity and action, universals and particulars, and conditions.

[23] The [contradictory] opposition of a universal affirmative proposition is a particular negative proposition. And the [contradictory] opposition of a universal negative proposition is a particular affirmative proposition, such as our statement: "all humans are animals" and "some humans are not animals." As well as [our statements]: "no human is an animal" and "some humans are animals."

[24] Two quantified propositions [exhaustive] do not establish a [contradictory] opposition between them except by differing in the [quantity of their] universals and particulars. This is because two universal propositions can both be false, such as our statements, "all humans are writers" and "no humans are writers." [Similarly], two particular propositions can both be true, as in our statements, "some humans are writers" and "some humans are not writers."

الترادف

[22] عَوْدُ الْخِلَافِ لِلْمَقُولِ بِالْإِيجَابِ وَالنَّهْيِ بِحَيْثُ يُلَاقِي بِلَاغِهِ أَلَّا تَكُونَ

إِنْخِلَافًا حَاقِلَةً وَالْكَفَرِي كَاتِبَةً كَقَوْلِهِ: "وَيْدَهُ كَاتِبٌ... وَهِيَ لَيْسَ

بَكَاتِبَةٍ، وَلَا يَخْلُقُ ذَلِكَ إِلَّا بَعْدَ الْقَائِمَاتِ فِي الْمَوْضُوعِ، وَالْمَخْلُوقِ،

وَالْزَمَنِ، وَالْمَكَانِ، وَالْإِتِّفَاقِ، وَالْمَقَرِّ، وَالْفِعْلِ، وَالْجُلْدِ، وَالْمَقَرِّ، وَالْمَقَرِّ،

[23] وَيُجِيبُ الْمَوْجِبَةَ الْكَلِمَةُ بِأَنَّ عَوْدَ الشَّيْءِ الْمَجْزِيَّةِ، وَيُجِيبُ الشَّيْءَ

الْكَلِمَةَ بِأَنَّ عَوْدَ الْمَوْجِبَةِ الْمَجْزِيَّةِ، كَقَوْلِهِ: "كُلُّ إِنْسَانٍ عَيُورٌ... هَبْشُ

الْإِنْسَانِ لَيْسَ بِعَيُورٍ، وَ"لَا كَاتِبَةٌ مِنَ الْإِنْسَانِ بِعَيُورٍ... هَبْشُ

الْإِنْسَانِ عَيُورٌ."

[24] فَالْمَخْلُوقُونَ لَا يَخْلُقُونَ إِلَّا بَعْدَ الْقَائِمَاتِ فِي الْمَوْضُوعِ، وَالْمَخْلُوقِ،

وَالْزَمَنِ، وَالْمَكَانِ، وَالْإِتِّفَاقِ، وَالْمَقَرِّ، وَالْفِعْلِ، وَالْجُلْدِ، وَالْمَقَرِّ،

وَالْمَقَرِّ، وَالْمَقَرِّ، كَقَوْلِهِ: "كُلُّ إِنْسَانٍ كَاتِبٌ، وَ"لَا

كَاتِبَةٌ مِنَ الْإِنْسَانِ بِكَاتِبَةٍ، وَ"لَا كَاتِبَةٌ مِنَ الْإِنْسَانِ بِكَاتِبَةٍ... هَبْشُ

الْإِنْسَانِ كَاتِبٌ... هَبْشُ الْإِنْسَانِ لَيْسَ بِكَاتِبٍ."

TRANSLATION

Opposition

[22] Opposition is a difference between two categorical propositions in terms of affirmation or negation such that one of them must be true and the other must be false, as in our statements, "Zayd is a writer" and "Zayd is not a writer." This is not established, except after there is [a complete] equivalence of the subject, predicate, timing, place, relationship, capacity and action, universals and particulars, and conditions.¹⁰

10. That is, it can only be established after a complete equivalence is established. 11. Adhā refers to the temporal relationship of the subject such as, "brother-to-brother" or "sister-to-sister." Since these compound relationships are all ultimately subjects, the inclusion here may in fact be redundant; it serves to emphasize the author's point that everything must be an exact equivalent.

12. Capacity and action (quwwa wa-ʿamal) are philosophical concepts relating to someone's potential to do something versus their actually doing it. Actuality is a capacity that is acted out. For example, 'Alāha is hovering in actuality and not breaking in potentiality. This is not contradictory because, for example, having the potential to not break (i.e., by holding very hard) does not necessarily mean that one is not breaking in actuality.

13. The conditions in a proposition must agree. For example, one proposition states, "if it is 70 degrees 'Alāha will be cold" and another proposition states, "if it is 70 degrees 'Alāha will be hot"; the two propositions do not contradict each other because the conditions differ (in one, the condition states that it is 70 degrees and in the other, it is 75 degrees).

EXPLANATORY NOTES

Propositional statements make statements that affirm or deny certain claims based on the relationship between the subject and the predicate of the proposition. This means that the affirmation or negation in one form of a categorical proposition will lead to a relationship with another proposition that conveys the opposite meaning. In light, these related propositions that convey opposing meanings are known as **oppositions**. Each structure of each categorical proposition requires that its opposing proposition be formed in a particular correlating structure in order to retain its truth value.

Al-Abhari begins his discussion of oppositions with the most simple form, which is known as a **singular proposition**. This refers to a specified object or individual as the subject of the categorical proposition. In such a statement, it is sufficient to simply contradict the singular proposition to convey its opposite meaning. Al-Abhari provides the proposition "Zayd is a writer." This is a singular proposition, in that the subject, "Zayd," refers to a specific individual. Specific individuals are also spoken of as universals or "wholes." That is, when we say Zayd is a writer, it is understood that all of Zayd is a writer and not one-quarter of Zayd or some part of Zayd.

Therefore, the contradictory oppositional proposition is simply formed with a negation. This process is also true for propositions that make statements about existence, such as "Alāha exists." For this rule to be applicable the two singular statements (that is, the proposition and opposition) must be exactly the same in subject and predicate. They must not have any temporal qualifiers that change the nature of the subject or predicate in the oppositional proposition. Al-Abhari gives a list of temporal qualifiers such as time, location, relationship, etc. that can alter the equivalence of the subject and predicate in another categorical proposition; this, in turn, means that the contradiction is not an oppositional proposition in relation to the original.

Below are examples that further elucidate the temporal qualifiers that al-Abhari mentions in his text of the *Maqayis*.

Difference in subject: Zaynab is sitting + 'Umar is not sitting.

Difference in the predicate: Zaynab is standing + Zaynab is not sitting.

Difference in timing: Zaynab was fasting yesterday + Zaynab is not fasting today.

Difference in location: Zaynab is not productive at home + Zaynab is productive at work.

Difference in relationship (al-ʿiṣṣa): Zaynab is Ayman's aunt + Zaynab is not 'Alāha's aunt.

Difference in potentiality and actuality: Zaynab is, in potentiality, a good writer + Zaynab is not, in actuality, a good writer.

Difference in universals and particulars: Zaynab is white [her skin tone as a whole] + Zaynab is dark [in part, when referring to her eyes].

Difference in conditions: Zaynab likes to work [when she is at her job] + Zaynab does not like to work [when she is on vacation].

Note that the rules for deriving oppositional statements rest on what is known as the **principle of non-contradiction**. This states that it is impossible for two contradictory statements to both be true and it is impossible for them to both be false. However, in order for this principle of non-contradiction to be applicable to two statements, they must be exactly the same in every way, including all of the temporal qualifiers al-Abhari lists in the examples above. Otherwise, because a **qualifier** may alter the subject or predicate of the original categorical proposition, two statements that may appear contradictory may not be truly contradictory.

If we return to al-Abhari's example, "Zayd is a writer," the only way to contradict this type of singular statement is by saying the exact same thing with the exact same qualities (i.e., time, place, etc.) and by stating contradictory things about them (i.e., in the case above,

"Zayd is not a writer"). For example, the statement "Zayd is writing in the morning" and "Zayd is not writing in the afternoon," is not a contradictory opposition because the temporal quality differs. Similarly, a true contradiction involves referring to the exact same subject and the same thing attributed to the subject, then affirming it in one proposition and negating it in another. Commentaries on the *Maqayis* by some later scholars have simplified the above by stating that the entirety of the subject and predicate must be exactly the same.

TRANSLATION

[25] The [contradictory] opposition of a universal affirmative proposition is a particular negative proposition. And the [contradictory] opposition of a universal negative proposition is a particular affirmative proposition, such as our statement: "all humans are animals" and "some humans are not animals." As well as [our statements]: "no human is an animal" and "some humans are animals."

[26] Two quantified propositions [exhaustive] do not establish a [contradictory] opposition between them except by differing in the [quantity of their] universals and particulars. This is because two universal propositions can both be false, such as our statements, "all humans are writers" and "no humans are writers." [Similarly], two particular propositions can both be true, as in our statements, "some humans are writers" and "some humans are not writers."

EXPLANATORY NOTES

Qualities and Quantities of Propositions

Propositions are said to have both qualities and quantities. **Qualities** either affirm or deny relationships between subjects and predicates in a proposition. Thus, when we say "Alāha is a scholar," the quality of this proposition is an affirmation that binds the subject and the predicate. Similarly, if we say "Alāha is not a scholar," we have established a quality of denial in this proposition in which the subject and the predicate have a relationship of difference.

Quantities of propositions involve the question, "how much?" In the context of non-singular (that is, universal and particular) categorical propositions, the quantity of a proposition specifies the extent of the subject, for example, all, some, every. Thus, every subject of a proposition is either singular, universal, or particular based on what is known as its quantity. Universal propositions are universal if the subject is referred to its entirety rather than its parts. Words such as, "every" and "all" and negative terms such as "no" and "none" are universals. Particulars refer to the restricted extent of a subject. Quantifiers such "some" and "many" are examples of terms that provide a subject and make the proposition particular, based on the particularity of its subject.

Universal and Particular Quantifiers

Below are some of the most common examples of quantifiers used to denote universal and particular statements.

Universal Quantifiers

All—All humans are rational.

Any—Any human is rational.

None—None of the humans are rational.

No one—No one is rational.

No—No human is rational.

Never—Humans are never rational.

Whoever—whoever is human is rational.

One who—One who is human is rational.

Whoever—Whoever is human is rational.

Whenever—Whenever human is rational.

Particular Quantifiers

Some—Some humans are rational.

Other—Other humans are rational.

Several—Several humans are rational.
Conversely—Conversely, humans are rational.
Most—Most humans are rational.
Usually—Usually humans are rational.
Sometimes—Sometimes humans are rational.
Frequently—Frequently humans are rational.

In the Western scholastic discourse on logic, the variations of quantities and qualities of categorical propositions have been labeled based on the Latin words *affirmo* (I affirm) and *negō* (I deny). The two propositions with affirmative qualities (A and I) were derived from the first two vowels in the word *Affirmo*. The two negative propositions (E and O) were derived from the two vowels in the word *negō*. Thus, in English logic texts the following abbreviations are used for the variations of categorical propositions that relate to quality and quantity.

A: Universal Affirmative Proposition

E: Universal Negative Proposition

I: Particular Affirmative Proposition

O: Particular Negative Proposition

Each proposition (A, E, I, and O) has a different form of opposition that can be formed with the other. The forms of opposition are contradictory, contrary, and subcontrary opposition. To define these terms, we utilize a well-known logic diagram known as the **square of opposition**.

EXPLANATORY NOTES

Qualities and Quantities of Propositions

Propositions are said to have both qualities and quantities. **Qualities** either affirm or deny relationships between subjects and predicates in a proposition. Thus, when we say "Alāha is a scholar," the quality of this proposition is an affirmation that binds the subject and the predicate. Similarly, if we say "Alāha is not a scholar," we have established a quality of denial in this proposition in which the subject and the predicate have a relationship of difference.

Contradictory, Contrary, Subcontrary, and Subalternative Oppositions

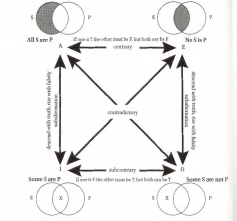
Contradictory oppositions are those in which two categorical propositions necessitate that one is true and the other is false. This means that the two statements are true contradictions that follow the principle of non-contradiction, which holds that both statements cannot be true and false at the same time. The denial of one categorical proposition by its contradictory opposition is a denial of both quantity and quality.

Thus, based upon the diagram above, "A" and "O" are contradictory oppositions and "E" and "I" are contradictory oppositions. Al-Abhari says this in the *Maqayis* when he writes that the opposition of a universal affirmative proposition is a particular negative proposition. A universal affirmative proposition is an A proposition. A particular negative proposition is an O proposition. The square of opposition (see diagram 2) confirms this statement by illustrating that an A proposition is contradicted by an O oppositional proposition and vice versa.

Similarly, al-Abhari writes that the opposition of a universal negative proposition (that is, an E proposition) is a particular affirmative proposition (that is, an I proposition). The square of opposition (diagram 2) illustrates the same principle highlighted by al-Abhari; that is, the contradictory opposition of an E proposition is an I proposition and vice versa.

The examples of contradictory oppositions al-Abhari provides are the A proposition "all humans are animals" and the O proposition "some humans are not animals." If we use the universal phrase *all* to claim that humans are animals, then the existence of even one example to the contrary is sufficient to contradict this statement. Thus, the statement "some humans are not animals" means that the claim that humans are all animals is altogether false.

Additionally, al-Abhari uses the E proposition, "no human is an animal," to establish a contradictory opposition with the I proposition,



A: Universal Affirmative Proposition
E: Universal Negative Proposition
I: Particular Affirmative Proposition
O: Particular Negative Proposition
Minor Term (S) = Subject
Major Term (P) = Predicate

Diagram 2: Square of opposition

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When al-Abhari says that two particular propositions can both be true, as in our statements, "some humans are writers" and "some humans are not writers," this is what he means. That is, some humans can be writers and some humans cannot be writers are equally true statements. If Zaynab is a writer, it is possible for 'Alāha to not be a writer. However, they cannot both be false because our usage of the particular term "some humans are writers" means that there are also some who are not (otherwise, we would have said "all humans are writers").

Al-Abhari refers to this possibility of both statements being false when he states: Two quantified propositions [exhaustive] are not opposed unless they differ in the quality of their universals and particulars because two universal propositions can both be false, as in our statements, "all humans are writers" and "no humans are writers."

As mentioned above, two universals cannot establish a contradictory opposition, they can only establish a contrary opposition that means that they can both be false. "All humans are writers" and "no humans are writers" are examples of two universal statements (that is, with the same quantity) that differ in quality. While it is possible for one to be true and the other false, there is a third possibility in which al-Abhari's first proposition is not true, nor is the second. Thus, they are contrary but not contradictory oppositions.

Subcontrary oppositions are those in which both propositions cannot be false but both can be true. This type of opposition occurs between the particular I and O statements that are illustrated in the bottom of the square of opposition (diagram 2). Since particular

statements refer to specific segments, it is possible for two statements to refer to differing parts of the whole; therefore, both can be true. However, since an affirmative particular statement implies that there is a negative particular statement that is also true (otherwise it would have been a universal statement), two similar particular statements with different qualities cannot both be false.

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Conversion

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- [26] Based on this reasoning, a particular affirmative proposition is also converted as a particular proposition. A universal negative proposition is converted as a universal proposition. This is self-evident, because if it is true that "no stone is a human," then it is [also] true that "no human is a stone." A particular negative proposition has no necessary conversion [pattern] because our statement, "some animals are not humans," is true, whereas its conversion is not true.

الْعَكْسُ

[٢٥] هُوَ أَنْ يُصَيِّرَ الْمَوْضُوعُ عَمُومًا وَالْمَحْمُولُ مُوَضَّوعًا مَعَ بَقَاءِ الْإِيجَابِ

وَالسَّلْبِ بِخَالِهِ وَالتَّصْدِيقِ وَالتَّكْذِيبِ بِخَالِهِ. الْمَوْجِبَةُ الْكُلِّيَّةُ لَا تَتَعَكَّشُ

كُلِّيَّةً؛ إِذْ يُصَدِّقُ قَوْلُنَا: «كُلُّ إِنْسَانٍ حَيَوَانٌ»، وَلَمْ يُصَدِّقْ «كُلُّ حَيَوَانٍ

إِنْسَانٌ»، بَلْ تَتَعَكَّشُ جُزْئِيَّةً؛ لِأَنَّ إِذَا أَقُلْنَا: «كُلُّ إِنْسَانٍ حَيَوَانٌ»

يُصَدِّقُ: «بَعْضُ الْحَيَوَانِ إِنْسَانٌ»، فَإِنَّمَا نَجِدُ شَيْئًا مُعَيَّنًا مُوَضَّوعًا بِإِلْسَانِ

وَالْحَيَوَانِ، فَيَكُونُ «بَعْضُ الْحَيَوَانِ إِنْسَانًا».

[٢٦] وَالْمَوْجِبَةُ الْجُزْئِيَّةُ أَيْضًا تَتَعَكَّشُ جُزْئِيَّةً بِهَذِهِ الْحَقِيقَةِ. وَالسَّالِيَةُ الْكُلِّيَّةُ

تَتَعَكَّشُ كُلِّيَّةً، وَذَلِكَ يُبَيِّنُ فِي نَفْسِهِ، فَإِنَّهُ إِذَا صَدَقَ: «لَا شَيْءَ مِنَ الْحَجَرِ

يُأَنْسَانُ» صَدَقَ «لَا شَيْءَ مِنَ الْإِنْسَانِ يَحَجَرُ». وَالسَّالِيَةُ الْجُزْئِيَّةُ لَا عَكْسَ

لَهَا لَزُومًا؛ لِأَنَّهُ يُصَدِّقُ قَوْلُنَا: «بَعْضُ الْحَيَوَانِ لَيْسَ بِإِنْسَانٍ» وَلَا يُصَدِّقُ

عَكْسُهُ.

TRANSLATION

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EXPLANATORY NOTES

Conversion (*'aks al-mustawī*) is a process in which the subject and the predicate are reversed while maintaining the the propositions' affirmative or negative quality and its truth value. That is, rather than stating the opposite of a proposition (the way we did in earlier oppositional statements), in a conversion, we state the same thing in a different way. For a conversion to do this, there are rules to follow based on the quantity and quality of each proposition. The new proposition that results after a subject and predicate are switched is known as the converse. According to the rules for proper conversion, there are two types of conversion, a simple conversion and conversion by limitation.

Simple Conversion and Conversion by Limitation

Simple conversion is a process by which the subject and the predicate are switched without making any other changes to its quality or quantity. This is valid only for universal negative propositions (E propositions) and particular affirmative propositions (I propositions). When al-Abhari writes, "A particular affirmative proposition is also converted as a particular proposition based on this reasoning," he is referring to I propositions. This means that the I proposition, "some S is P," can be converted by simple conversion to, "some P is S."

Al-Abhari also gives an example of E propositions in the section on conversion when he writes: "A universal negative proposition is converted as a universal proposition. And this is clearly self-evident, because if it is true that, 'no stone is a human,' then it is [also] true that, 'no human is a stone.'"

This type of conversion process is known as a "simple conversion" because, as we see in the example, the subject and predicate *simply* switch, while maintaining the truth value of the statement.

Conversion by limitation entails two steps. The first step involves switching the subject and the predicate. The second step involves adjusting the quantity. This process is used to convert universal

affirmative (A) propositions. This is indicated in al-Abhari's statement, "a universal affirmative proposition does not convert to a universal proposition." The process for conversion by limitation for A propositions involves adjusting the quantity from universal to particular. Thus, if it is said 'every S is P,' the converse would be 'some P is S.'

The example al-Abhari provides is the universal A proposition, "every human is an animal." The reversal of the subject and predicate without adjusting its quality would be invalid in terms of its truth value because, as al-Abhari states, "we find elements of specific traits in [both] humans and animals." He means that the category of animal is broader than the category of human. This relates to the concept of **distribution** in logic. When a term applies to the entirety of another term, we say it is distributed. Universal propositions always distribute the predicate to the entirety of the subject, but this is not the case when they are reversed. That is, "all animals" distributes itself to "all humans," meaning that there is no human that is not an animal. However, the category of animal is broader than the category of human because it includes other non-human animals. This means a subject of a broader category cannot be used universally as a predicate of a narrower category because the predicate in this case would **not be distributed** to the subject. Thus, universal propositions must be made into particular propositions as a part of their conversion process. This is what al-Abhari means when he says:

"Every human is an animal" is true, the converse that "every animal is a human" is not true. Therefore, it must convert as a particular proposition. This is because if we said, "every human is an animal," it would be accurate [to say], "some animals are humans."

O propositions or particular negative propositions do not have any set rule by which they can be converted. The simple conversion rules and the conversion by limitation rules only apply to A, I, and E propositions. This is what al-Abhari means in his statement: "A particular negative proposition has no necessary conversion [pattern]. This is

because our statement, 'some animals are not humans,' is true, whereas its conversion is not true."

Obversion (*'aks al-naqīd*)

Finally, note that obversion is another form by which we can make the same statement in terms of truth value while adjusting the quality of the proposition. An obversion involves denying the contradictory opposition of a proposition to affirm the same truth of a proposition. An obversion is based on the premise that if a proposition is true, then a denial of its contradiction will retain the same truth. Obversion is known in Arabic as *'aks al-naqīd*, as opposed to conversion, which is known as *'aks al-mustawī*. Although al-Abhari does not discuss obversion, later commentaries on the *Isagoge* and other logic texts mention it. We also find these concepts in the study of debate and disputation (*'ilm al-baḥth wa-l-munāẓara*). The following are examples of obversion.

Zaynab is a distinguished writer.

Obversion: *Zaynab is not an undistinguished writer.*

'Umar always runs fast

Obversion: *'Umar does not ever not run fast.*

The process of proper obversion entails two steps. *First*, the quality of the proposition must change. *Second*, the predicate must be negated.

Step One: "Humans are rational," changes to "humans are irrational."

Step Two: "Humans are irrational" changes to "humans are not irrational."

Thus, the obversion of the statement, "humans are rational," is "humans are not irrational."

Syllogism

[27] [A syllogism] is an assertion composed of [other] assertions, which if accepted as true, necessitates another assertion. It can be a **correlative [syllogism]** (*iqṭirānī*), such as our statement: "each body is formed," and "each thing which is formed is temporal" therefore "each body is temporal." Alternatively, it can be a **selective [syllogism]** (*istithnāʿī*), such as our statement, "if the sun is out, then it is daytime." However, "it is not daytime," therefore, "the sun is not out."

[28] What is repeated between the two premises of the syllogism is referred to as the "**middle term**" (*ḥadd awṣaf*). The subject of the conclusion is referred to as the **minor term** (*ḥadd aḡḡhar*) and its predicate is the **major term** (*ḥadd akḡhar*). The premise that contains the minor term is referred to as the **minor [premise]** (*ṣaḡḡrā*) and the one that contains the major term is known as the **major [premise]** (*akḡrā*). The structural composition of the major and minor premises [of the syllogism] is called a figure (*shakl*).

[29] There are four figures [of syllogisms]. If the middle term is the predicate in the minor premise and the subject in the major premise, then it is the **first figure**. If it is the inversion [of this] then it is the **fourth figure**. If [the middle term] is the subject in both [premises] then it is the **third figure**. If [the middle term] is the predicate in both [premises], then it is the **second figure**. These are the four figures outlined in logic.

القياس

[٢٧] هُوَ قَوْلٌ مُؤَلَّفٌ مِنْ أَوَّلِيٍّ مَعَ سَلْبَتِ نَزَمَ عَنْهَا لِذَاتِهَا قَوْلٌ آخَرُ، وَهُوَ

إِنَّمَا هُوَ قَوْلِي، كَقَوْلَانَا: «كُلُّ جَسَمٍ مُؤَلَّفٌ» وَ «كُلُّ مُؤَلَّفٍ مُخْتَلِفٌ» «فَكُلُّ

جَسَمٍ مُخْتَلِفٌ». وَلَئِنَّا سَلَبْنَا هَؤُلَاءِ، كَقَوْلَانَا: «إِنْ كَانَتِ الشَّمْسُ ظَالِمَةً

فَالنَّهَارُ نَوَاجِدٌ...» «لَكِنَّ النَّهَارَ لَيْسَ بِنَوَاجِدٍ...» «فَالشَّمْسُ لَيْسَتْ

بِظَالِمَةٍ.»

[٢٨] وَالْمَكْرُورُ بَيْنَ مُقَدَّمَتِي الْقِيَاسِ يُسَمَّى عَدًّا أَوْسَطَ، وَتَوْشُوحُ الْمَطْلُوبِ

يُسَمَّى عَدًّا أَصْغَرَ، وَتَحْدِيدُهُ يُسَمَّى عَدًّا أَكْبَرَ، وَالْمُفْلَعَةُ فِيهَا

الْأَصْغَرُ تُسَمَّى صُغْرَى، وَالَّتِي فِيهَا الْأَكْبَرُ تُسَمَّى كُبْرَى، وَقَبْلَةُ الْخَالِيفِ

مِنَ الصُّغْرَى وَالْكُبْرَى تُسَمَّى خَلْفًا.

[٢٩] وَالْإِتِّكَالُ أَرْبَعَةٌ: إِنْ كَانَ تَحْدِيدُهُ فِي الصُّغْرَى تَوْشُوحًا

فِي الْكُبْرَى فَهُوَ الشَّكْلُ الْأَوَّلُ، وَإِنْ كَانَ بِالْعَكْسِ فَهُوَ الرَّابِعُ، وَإِنْ كَانَ

تَوْشُوحًا فِيهِمَا فَهُوَ الثَّالِثُ، وَإِنْ كَانَ تَحْدِيدُهُ فِيهِمَا فَهُوَ الثَّانِي. فَهَذِهِ هِيَ

الْإِتِّكَالُ الْارْبَعَةُ الْمَذْكُورَةُ فِي الْمَطْلُوعِ.

TRANSLATION

The Syllogism

[27] [A syllogism] is an assertion" composed of [other] assertions, which if accepted as true, necessitates another assertion. It can be a **correlative [syllogism]** (*iqṭirānī*), such as our statement: "each body is formed," and "each thing which is formed is temporal" therefore "each body is temporal." Alternatively, it can be a **selective [syllogism]** (*istithnāʿī*), such as our statement, "if the sun is out, then it is daytime." However, "it is not daytime," therefore, "the sun is not out."

EXPLANATORY NOTES

Inductive and Deductive Reasoning

When we form inferences or conclusions in our minds about matters that we do not already have information about, then we must use one of two methods of reasoning. The first method of reasoning is **inductive reasoning** and the second is **deductive reasoning**. In both cases, we use pre-established concepts, that is, propositions that are taken to be truths to establish a relationship between these assertions and derive another assertion known as the conclusion. In Arabic logic, this relationship between assertions that establishes a conclusion by necessity (i.e., *ḥazm*) is known as *qiyās*.

Inductive reasoning relies on the observation of consistent recurrences of certain matters from which we can derive a conclusion based

on the assumption that the recurrence will continue. This type of conclusion may be derived from scientific experimentation or the way we form common beliefs about how the world operates. Examples of inductive reasoning include the following.

Alexander the Great was mortal.
Muhammad Ali was mortal.
Malcolm X was mortal.
Everyone who lived in the eighteenth century was mortal.
Therefore, I must also be mortal.

This conclusion is reached through inductive reasoning, after seeing a prevalent pattern (in this case death). It can be assumed to apply to other similar instances (in this case all humans in the eighteenth century). Inductive reasoning is foundational to deriving conclusions from scientific laboratory work, in which scientists conduct extensive experiments with controls, to look for consistent patterns and gather knowledge about how microorganisms or chemicals operate.

This combination of two propositions in a syllogism occurs by way of a connecting term that recurs in both propositions, which in turn connects the two premises by way of "mediation." This connection between the two propositions is called "correlation" (*muqārranā*); it necessitates a new statement in the form of a conclusion. Thus, **syllogisms that are derived from correlating propositions that contain a mediating phrase or term that connects them are known in Arabic logic as *qiyās al-iqṭirānī* (syllogisms of correlation).** The following sections of the *ḥaṣṣa* detail about the ways in which these types of syllogisms are established.

A selective syllogism (*qiyās al-istithnāʿī*) is a syllogism in which the conclusion or the opposite of the conclusion appears in one of the two propositions leading to the conclusion. Since it appears in its full form in one of the propositions, a selective syllogism is said to appear in actuality (*bi-l-yūʿī*). This stands in contrast to syllogisms of correlation, in which the entirety of the conclusion does not appear in the premises, but rather results from the implied connection between the premises. In the case of syllogisms of correlation, this "appearance" of a conclusion through implication is said to be an appearance in potentiality (*bi-l-ḡayb*).

In a selective syllogism, the major premise (which is the first premise in the syllogism) also contains a conditional "if-then" statement. The example al-Abhari provides of conditional syllogisms is, "if the

statement results in a new statement or conclusion based on this connection.

Al-Abhari notes that syllogisms have two forms, syllogisms of correlation (*iqṭirānī*) and selective syllogisms (*istithnāʿī*). The most common example used to demonstrate the combined syllogism is S=M, M=P, therefore S=P. In the correlative syllogism the key identifying factor is the importance of the premises; the entirety of the conclusion (S=P) cannot be reached without the premises leading up to it. Thus, two propositions are combined to result in the conclusion, since only parts of the conclusion are in each of the premises.

This combination of two propositions in a syllogism occurs by way of a connecting term that recurs in both propositions, which in turn connects the two premises by way of "mediation." This connection between the two propositions is called "correlation" (*muqārranā*); it necessitates a new statement in the form of a conclusion. Thus, **syllogisms that are derived from correlating propositions that contain a mediating phrase or term that connects them are known in Arabic logic as *qiyās al-iqṭirānī* (syllogisms of correlation).** The following sections of the *ḥaṣṣa* detail about the ways in which these types of syllogisms are established.

A selective syllogism (*qiyās al-istithnāʿī*) is a syllogism in which the conclusion or the opposite of the conclusion appears in one of the two propositions leading to the conclusion. Since it appears in its full form in one of the propositions, a selective syllogism is said to appear in actuality (*bi-l-yūʿī*). This stands in contrast to syllogisms of correlation, in which the entirety of the conclusion does not appear in the premises, but rather results from the implied connection between the premises. In the case of syllogisms of correlation, this "appearance" of a conclusion through implication is said to be an appearance in potentiality (*bi-l-ḡayb*).

In a selective syllogism, the major premise (which is the first premise in the syllogism) also contains a conditional "if-then" statement. The example al-Abhari provides of conditional syllogisms is, "if the

sun has risen, then it is daylight." The conditional premise that contains the "if-statement" is known as *muqaddima shartīyya*. The minor premise (which is the second premise in the syllogism, that is, the "then-statement") is a categorical proposition (*qadīyya ḥamīdiyya*) in which the predicate or subject of the first premise is affirmed or denied. In this case, we might say that one of the conditions is "selected" in the selective syllogisms. If the second premise affirms the first premise, it is known as an affirmative premise (*wadīʿa*). If the minor premise negates the first premise it is known as negational premise (*naḡīʿa*).

The following is an example of an affirmative selective syllogism.
If the sun has risen, it is daytime. [Premise 1]
The sun has risen. [Premise 2]
Therefore, it is daytime. [Consequent]

The following is an example of a negative selective syllogism.
If the sun has risen, it is daytime. [Premise 1]
It is not daytime. [Premise 2]
Therefore, the sun has not risen. [Consequent]

Note that in both cases the consequent or its contradiction is expressed explicitly (*bi-l-yūʿī*) in the first premise ("the sun has risen") of the selective syllogism. Furthermore, in a conditional syllogism: "If A, then B," the conditional element "If A" is known as the antecedent (*muqaddima*). The result "then B" is known as the consequent (*nāṭiq*).

There are two additional rules related to conditional syllogisms:

1. *An affirmation of the antecedent must result in an affirmation of the consequent. But an affirmation of the consequent does not necessitate an affirmation of the antecedent.* For example, in the conditional proposition, "if Zaynab is a human [being], she is a living being," affirming Zaynab's humanity necessitates affirming her status as a living being. In fact, an affirmation that she is a living being does not

necessarily mean she is a human being. She could be a cat, a plant, or a goat.

2. *A negation of the consequent necessitates a negation of the antecedent, but a negation of the antecedent does not necessitate a negation of the consequent.* In the example, "if Zaynab is a human [being], she is a living being," if we say Zaynab is not a living being, we would have to conclude that she is not a human [being], but if we say she is not a human being, she could still be another type of living being,

TRANSLATION

[28] What is repeated between the two premises of the syllogism is referred to as the "**middle term**" (*ḥadd awṣaf*). The subject of the conclusion is referred to as the **minor term** (*ḥadd aḡḡhar*) and its predicate is the **major term** (*ḥadd akḡhar*). The premise that contains the **minor term** is referred to as the **minor [premise]** (*ṣaḡḡrā*) and the one that contains the **major term** is known as the **major [premise]** (*akḡrā*). The structural composition of the major and minor premises [of the syllogism] is called a figure (*shakl*).

EXPLANATORY NOTES

As mentioned, a syllogism is a combination of propositions that necessarily lead to a third proposition that takes the form of a conclusion. Thus, the basic structure of a syllogism is made up of three propositions. Propositions 1 and 2 function as what are known as premises, while proposition 3 functions as the conclusion. The premises are the supporting evidence that lead to a particular conclusion, that a particular subject (S) equals a particular predicate (P) or what is often symbolized as S=P. The subject of the conclusion (S) is known as the minor term (*ḥadd aḡḡhar*). The predicate (P) of the conclusion is known as the major term (*ḥadd akḡhar*).

The two premises that lead to the conclusion are connected by what is known as a middle term. The middle term creates the correlation between the two propositions and makes them function as premises (by creating new information in the form of a third proposition, known as the conclusion). This connector or link between the two premises

of the syllogism is known as the "**middle term**" (*ḥadd awṣaf*), and is often represented as "M" in logical formulas.

Syllogisms are always made of three propositions. The premise that contains the subject of the conclusion is known as the **minor premise**. The premise that contains the predicate of the conclusion is known as the **major premise**. The predicate and the premise containing the predicate are characterized as "major" because the predicate of a conclusion is ideally more general and more universal than the subject. The subject and the premise containing the subject are referred to as "minor" because, ideally, the subject is more specific or particular than the predicate.

The equation of the subject (the minor premise) and the predicate (the major premise) is known as the conclusion. In the conclusion, the middle term is always eliminated although it appears in both the minor and major premise. The structure of the syllogism, in terms of the placement of the middle term in the premises, is known as the figure (*shakl*) of the syllogism. Below is an example of the structure of a syllogism.

M=P — Major Premise (*akḡrā*)
S=M — Minor Premise (*ṣaḡḡrā*)
S=P — Conclusion

The middle term is M because it is repeated in both premises. The minor term is S because it is the subject (*marʿa*) of the conclusion (S=P). The major term is P because it is the predicate (*maḡḡal*) of the conclusion (S=P). The minor premise is S=M because it includes the minor term (S). The major premise is M=P because it includes the major term (P).

TRANSLATION

[29] There are four figures [of syllogisms]. If the middle term is the predicate in the minor premise and the subject in the major premise, then it is the **first figure**. If it is the inversion [of this] then it is the **fourth figure**. If [the middle term] is the subject in both [premises] then it is the **third figure**. If [the middle term] is the predicate in both [premises], then it is the **second figure**. These are the four figures outlined in logic.

EXPLANATORY NOTES

Al-Abhari recognizes four figures of syllogisms; these figures are defined by the placement of the middle term in the minor and major premises, as elucidated below.

Figure 1

M=P [Major Premise]
S=M [Minor Premise]
S=P [Conclusion]

In figure 1, the middle term M is the subject in the major premise (M=P) and it is the predicate in the minor premise (S=M). An example of this follows:

Every human (M) is rational (P) [Major Premise]
Zayd (S) is a human (M) [Minor Premise]
Therefore, Zayd (S) is rational (P) [Conclusion]

Figure 2

P=M [Major Premise]
S=M [Minor Premise]
S=P [Conclusion]

In figure 2, the middle term (M) is the predicate in both premises.

Figure 3

M=P [Major Premise]
M=S [Minor Premise]
S=P [Conclusion]

In figure 3, the middle term is the subject in both premises.

Figure 4

P=M [Major Premise]
M=S [Minor Premise]
S=P [Conclusion]

In figure 4, the middle term is the subject in the minor premise and the predicate in the major premise. That is, as al-Abhari states, it is an inversion of the first figure.

14 Other editions add the phrase, *maʿlūm an-naḡīʿa* ("either articulated or conceptualized").

- [30] The fourth figure is exceedingly distant from what is natural. One with a sound mind and a steady disposition does not need to revert the second [figure] into the first [figure]. The second [figure] is derived when there is a contradiction between the two premises [by way of] either affirmation or negation. The first figure is the one that has been considered the standard for [deductive] knowledge. We presented it here to form a blueprint and derive what is requested.

[There are] four optimal moods

- [31] **First:** As in our statement, “each body is formed” and “each thing that has been formed is temporal,” therefore, “each body is temporal.”
- [32] **Second:** As in our statement, “each body is formed,” and “nothing that is formed is eternal,” therefore “no body is eternal.”
- [33] **Third:** As in our statement, “some bodies are formed,” and “everything that is formed is temporal,” therefore “some bodies are temporal.”
- [34] **Fourth:** As in our statement, “some bodies are formed,” and “nothing that is formed is eternal,” therefore, “some bodies are not eternal.”

[٣٠] وَالشَّكْلُ الرَّابِعُ مِنْهَا يَبِيدُ عَنِ الطَّنْعِ جَدًّا. وَالَّذِي لَهُ عَقْلٌ سَلِيمٌ وَ طَنِعٌ

مُسْتَقِيمٌ لَا يَخْتَارُ إِلَى رَدِّ الثَّانِي إِلَى الْأَوَّلِ. وَلِنَّمَا يُنْتِجُ الثَّانِي عِنْدَ اخْتِلَافِ

مَقْدَمَيْهِ بِالْإِجَابِ وَالسَّلْبِ. وَالشَّكْلُ الْأَوَّلُ هُوَ الَّذِي جُعِلَ مَعْيَارًا

لِلْعُلُومِ، فَتَوَرَّدَ هَهُنَا لِيُجْعَلَ دُسْتُورًا وَ يُسْتَنْتَجَ مِنْهُ الْمَطْلُوبُ

وَصُرُوبُهُ الْمُنْتَبِجَةُ أَرْبَعَةٌ:

[٣١] الْأَوَّلُ: كَقَوْلِنَا: «كُلُّ جِسْمٍ مُؤَلَّفٌ» وَ «كُلُّ مُؤَلَّفٍ مُخَدَّثٌ» فَكُلُّ

جِسْمٍ مُخَدَّثٌ.

[٣٢] الثَّانِي: كَقَوْلِنَا: «كُلُّ جِسْمٍ مُؤَلَّفٌ» وَ «لَا شَيْءَ مِنَ الْمُؤَلَّفِ بِقَدِيمٍ» فَلَا

شَيْءٌ مِنَ الْجِسْمِ بِقَدِيمٍ.

[٣٣] الثَّالِثُ: كَقَوْلِنَا: «بَعْضُ الْجِسْمِ مُؤَلَّفٌ» وَ «كُلُّ مُؤَلَّفٍ حَادِثٌ»

«فَبَعْضُ الْجِسْمِ حَادِثٌ».

[٣٤] الرَّابِعُ: كَقَوْلِنَا: «بَعْضُ الْجِسْمِ مُؤَلَّفٌ» وَ «لَا شَيْءَ مِنَ الْمُؤَلَّفِ بِقَدِيمٍ»

«فَبَعْضُ الْجِسْمِ لَيْسَ بِقَدِيمٍ».

TRANSLATION

- [30] The fourth figure is exceedingly distant from what is natural. One with a sound mind and a steady disposition does not need to revert the second [figure] into the first [figure]. The second [figure] is derived when there is a contradiction between the two premises [by way of] either affirmation or negation. The first figure is the one that has been considered the standard for [deductive] knowledge. We presented it here to form a blueprint and derive what is requested.

EXPLANATORY NOTES

Validity vs. Truth of Syllogisms

As mentioned, a correlative syllogism is formed when two premises have a common connection in the form of their middle term. When this middle term forms a connection between two premises, then the conclusion is inferred by necessity. If the premises are assumed to be true and the connecting middle term has a valid connection between the two premises, then the conclusion is both valid and true. However, if the premises are not true but the syllogistic process by which the two premises are connected through the middle term is sound, then the syllogism is valid but the truth of the conclusion may or may not be true. In such a case, it is said that the truth of the conclusion is undetermined. On the other hand, if both the premises are true and the conclusion is false, then there must be a fallacy in the syllogistic reasoning that makes the syllogism itself invalid.

The following is an example of a syllogism that is valid but untrue:

Unicorns always have a single horn

Adam is a unicorn

Therefore, Adam has a single horn

The connection between the two premises above is valid. Therefore, the syllogism is valid. But the conclusion and all of the premises are clearly false, since unicorns do not exist. Therefore, it is important to distinguish between a valid conclusion based on valid syllogistic reasoning and a true conclusion. More details about what makes syllogisms valid follow; for now, I examine the kinds of valid syllogisms al-Abhari describes in this section.

The following is an example of an invalid syllogism with a true conclusion.

All humans are rational beings

Adam is a human

Therefore, all humans are mortal

The premises above are all true and the conclusion is also a true statement. However, the syllogism is invalid because the connection between the premises and the conclusion is insufficient. A valid syllogism can only have three terms: A major, minor, and middle term. The conclusion has a fourth term, “mortal,” which makes the syllogism invalid. A syllogism that is invalid because of an extra term is known as a **fourth term fallacy**. Thus, we can see that premises and conclusions in a syllogism can be true statements but the validity of the syllogistic process itself is a separate matter.

Some Forms of Valid Syllogisms Presented by al-Abhari

After presenting the four figures (*shakl*) of a syllogism and understanding the placement of the middle term, al-Abhari explains that he included the fourth figure for the sake of thoroughness, but in practice the fourth figure is rarely, if ever, used to make an argument. He states that the fourth figure mentioned, in which the middle term is the subject in the minor premise and a predicate in the major premise, is

a convoluted form of making an argument and is not commonly used because of its lack of clarity. Al-Abhari also explains that the second figure is not as clear as the first figure but it is still understandable to someone with a strong rational ability.

He also explains that figure 2 has two conditions that must be fulfilled in order to reach a valid conclusion. First, if one of the premises is affirmative, the other must be negative. Second, one of the two premises must be a universal proposition. The conclusion of the second form is always a particular negative proposition or a universal negative proposition. That is, the conclusion is always a negative statement.

Figures 3 and 4 are always a particular affirmative or a particular negative conclusion. That is, the conclusion of figures 3 and 4 must always be particular. Figure 4 must fulfill a number of other conditions in order to result in a valid conclusion. If the major premise is universal, one of the two premises must be affirmative and the other premise negative. If the minor premise is universal, both the premises must be affirmative.

As al-Abhari states, the most ideal and clear form of the syllogism is that of figure 1. Logicians refer to figure 1 as the “perfect syllogism.” This is because in making a strong argument, one aims to use figure 1 syllogisms, since the other figures do not always yield clear results. This is why when attempting to make a clear argument, there is an effort to transform figures 2–4 into the first figure when possible. For instance, one can transform figure 2 into figure 1, by changing the major premise into its converse (*ʿaks al-mustawī*) to render it into a figure 1 syllogism.

[41] As for the selective syllogism, (al-qiyās al-istithnāʾī) the conditional [proposition] is the major premise in it. If [the conditional syllogism] is **conjunctive**, then the [affirmative] selection of the antecedent results in the [affirmation of the] consequent itself. [This is according to] our saying, “If this is a human then he is an animal. He is a human. Therefore, he is an animal.” And the selection of a negation of the consequent results in the negation of the antecedent. [This is according to] our saying, “If this is a human then he is an animal. He is not an animal. Therefore, he is not a human.”

[42] If it is a strong (ḥaqīqīyya) **disjunctive syllogism**, the [affirmative] selection of one of the opposing two disjuncts results in the negation of the other and the selection of the negation of one [of the two opposing disjuncts] results in the affirmation of the other.

[٤١] وَأَمَّا الْقِيَاسُ الْإِسْتِثْنَائِيُّ: فَاتَّصِفُتْهُ الْمَوْخُوَّةُ بِهِ إِنْ كَانَتْ مُتَّصِلَةً:

فَإِسْتِثْنَاءُ عَنِ الْمَقْلَعِ يُنتِجُ عَنِ الْبَاقِي: كَقَوْلِكَ: «إِنْ كَانَ هَذَا إِنْسَانًا فَهُوَ

عَظَائِمٌ...» «إِذَا كَانَ هَذَا إِنْسَانًا فَهُوَ عَظَائِمٌ». وَإِسْتِثْنَاءُ تَقْيِيسِ الْبَاقِي يُنتِجُ

تَقْيِيسَ الْمَقْلَعِ: كَقَوْلِكَ: «إِنْ كَانَ هَذَا إِنْسَانًا فَهُوَ عَظَائِمٌ...» «إِذَا لَيْسَ

بِعَظَائِمٍ» «فَلَا يَكُونُ إِنْسَانًا».

[٤٢] وَإِنْ كَانَتْ مُتَّصِلَةً عَقِيبَةً: فَاسْتِثْنَاءُ عَنِ الْغَيْرِ الْجَزَائِي يُنتِجُ تَقْيِيسَ

الْآخَرِ: وَإِسْتِثْنَاءُ تَقْيِيسِ آخَرِهِمَا يُنتِجُ عَنِ الْآخَرِ.

TRANSLATION

[41] As for the selective syllogism, (al-qiyās al-istithnāʾī) the conditional [proposition] is the major premise in it. If [the conditional syllogism] is **conjunctive**, then the [affirmative] selection of the antecedent results in the [affirmation of the] consequent itself. [This is according to] our saying, “if this is human then he is an animal. He is human. Therefore, he is an animal.” And the selection of a negation of the consequent results in the negation of the antecedent. [This is according to] our saying, “if this is human then he is an animal. He is not an animal. Therefore, he is not human.”

[42] If it is a strong (ḥaqīqīyya) **disjunctive syllogism**, the [affirmative] selection of one of the opposing two disjuncts results in the negation of the other and the selection of the negation of one [of the two opposing disjuncts] results in the affirmation of the other.

EXPLANATORY NOTES

How to Translate *istithnāʾī*

The translation of the term *istithnāʾī* has long been a dilemma for scholars of Arabic logic who write in English. Some have used a literal translation of the word and refer to this as a syllogism of “exclusion” or “exception.”⁴⁸ This translation is problematic because it does not necessarily reflect the way al-Abhari uses it in his text, not to mention

other Arabic texts of logic and philosophy. Additionally, the use of the term *istithnāʾī* in Arabic logic differs from the way it is used in the field of Arabic grammar, where the word does indeed mean exception. It appears that some translators may have assumed that the meanings of this word are the same, without noting the distinctions between its use in the field of logic versus that of grammar.

Kwame Gyekye explores the technical meaning of the word *istithnāʾī* in the context of Arabic logic by examining the way Greek philosophical terms were translated into Arabic in early texts.⁴⁹ Gyekye states that in his translation of Aristotle’s *De Interpretatione*, Ishāq b. Hunayn translated the Greek word *prosthesis* (*prosthesis*), which means “to add,” as *istithnāʾī*.⁵⁰ Gyekye notes that *istithnāʾī* is also translated as *idāfa* and *zāda* in other places. Based on this, he argues that in its earliest appearance in texts of Arabic logic, the term *istithnāʾī* was used to mean “addition” and in this context, “additional assumption.”

Gyekye argues that the concept of an “additional assumption” referred to as *prolepsis* was used by the Stoics to refer to the minor premise of a conditional syllogism. *Prolepsis* is a synonym for *prosthesis* and both refer to a form of addition. The idea being that in a selective syllogism, the minor premise is an “additional assumption” that leads to a consequent.

Gyekye also notes that the word *istithnāʾī* is used in other texts as a translation of the term *prosthesis*, which means “further condition.”⁵¹ In combining these findings with other usages of the term *istithnāʾī* in Arabic texts, as well as Hebrew translations of texts of Arabic logic, he convincingly argues that the root of this word was most likely *th-n-y*, meaning “to duplicate” rather than that “to exclude.”⁵² The implied meaning is that the minor premise “duplicates” a portion of

what appears in the major premise. He also writes that many Muslim philosophers who use the term *istithnāʾī* take the word for granted and do not explain its meaning or connection to the form of syllogisms they are referring to. Therefore, it is possible that originally, an early translation of the word from Greek may have been intended to mean “duplicate” or “add,” but over time it came to be accepted as a term in the field of logic. The linguistic origins of the term *istithnāʾī* was later problematized by modern translators who attempted to capture the English equivalent of the term.⁵³

Some commentators on the *Isagoge* argue that the term *istithnāʾī* means to exclude because the minor premise of a selective syllogism is introduced by the term *lākin* (“but”). This reasoning does not appear to be strong, however, in light of Gyekye’s research into the origins of this term in Arabic texts of logic. It is also not necessary for the minor premise to begin with the term *lākin* in order for it to fit the criteria of the *istithnāʾī* syllogism as described by Ibn Sīnā’s logic tradition and by extension by al-Abhari in his *Isagoge*.

Additionally, translating this term as “syllogisms of exception and exclusion,” and “reduplicative propositions” is also inaccurate in relation to this portion of the text, as it does not correspond to these categories of syllogisms. **Exclusive syllogisms** are compound syllogisms in which two parts of the syllogism are joined with terms such as “only” or “alone.” For example, “Zayd will only pass the exam if he studies. Zayd has studied. Therefore, he will pass the exam.” **Syllogisms of exception** include terms such as “except” and “save.” Everyone who takes the exam will fail, except those who study. Zayd has studied. Therefore, he will pass the exam.” A **reduplicative syllogism** distributes a predicate to a subject with specific conditions. It uses phrases such as “as long as” and “as far as.” For example, “Zayd, as a student, is successful.” Therefore, there are duplicate statements being made about Zayd, in what appears to be one statement: “Zayd, as a student, is successful.” Both duplicate

⁴⁸ Kwame Gyekye, “The Term *istithnāʾī* in Arabic Logic,” *Journal of the American Oriental Society* 92, no. 1 (Jan.–Mar. 1972): 88–92.
⁴⁹ Gyekye, 88.
⁵⁰ Gyekye, 89.
⁵¹ Gyekye, 92.

⁵² This understanding is also in line with that of the Stanford Philosophy. See <https://plato.stanford.edu/entries/ibn-sina-logic/>.

statements embedded here must be true for the entire reduplicative statement to be true.

If we accept Gyekye’s argument that the origins of *istithnāʾī* come from “duplicate,” then it is the conclusion that is duplicated (i.e., that appears twice). It appears once in one of the premises and then reappears in the conclusion. This takes us back to our earlier discussion, based on commentators of the *Isagoge*, that in *istithnāʾī* syllogisms the conclusion appears explicitly (bi-l-ḥḍr) and appears somewhere in the minor and major premises before the consequent. Thus, the consequent is “duplicated” in the sense that it appears in the premises as well as the consequent. As discussed, in correlative syllogisms (qiyāsī), the conclusion does not appear explicitly in the premises, rather it appears implicitly (bi-l-qawwā) by virtue of its correlative relationship formed by the middle term. This is a different form of duplication than the two true statements implied in a reduplicative syllogism. The use of “duplicate,” “exception,” and “exclusion” in the titles of different forms of these syllogisms above makes it easy to form a false equivalence to the qiyās al-istithnāʾī which functions differently from all three of these forms of syllogisms.

Functionally, rather than the premises having a correlative relationship as in correlative syllogisms, we see that a selection of part of the major premise leads to the consequent of an *istithnāʾī* syllogism. The term “selection,” rather than “exclusion” or “exception,” is a more accurate description of the internal syllogistic process that distinguishes the *istithnāʾī* syllogism.

For this reason, I have chosen to use “selective syllogisms” as a translation for qiyās al-istithnāʾī, which stands opposite the correlative syllogism (qiyās al-qiyāsi). Al-Abhari also uses the term *istithnāʾī* to mean selection when he writes, if we “select” or affirm the antecedent then we also affirm the consequent in a conjunctive conditional proposition. It appears that despite its likely origins from the Greek term “duplicate,” it has evolved contextually as “selection” in logic texts.

The Structural Variations of Selective Syllogisms

1. Conditional Conjunctive

Al-Abhari provides the basic structures of selective syllogisms in his *Isagoge*. The first is composed of a major premise (mawḍiʿ), in this case known as an antecedent (muqaddam), since it is a conditional proposition. The minor premise is a categorical proposition that either posits (waqf) one of the terms of the condition in the major premise or negates one of the terms of the condition of the major premise.

Al-Abhari’s use of the term mawḍiʿ might be confusing because, when the term is used in the context of the entire syllogism, the major premise is the proposition, that is, the mawḍiʿ. By contrast, when mawḍiʿ is used in the context of a categorical proposition (ḥaqīqīyya), it is the subject (mawḍiʿ) and the predicate is known as khabar. The conclusion of a selective syllogism is known as the consequent (ḥād). Al-Abhari provides the following example:

If this is human then he is an animal. [Major Premise/Antecedent]

He is human. [Minor Premise]

Therefore, he is an animal. [Consequent]

Unlike the correlative syllogisms, the minor premise does not form a correlative relationship between the two premises through a middle term. Rather, in a selective syllogism, the minor premise forces a selection of one of the conditions set in the major premise. In this case, we must select either an affirmation or a negation of the major term. Also, the consequent is duplicated in the selective syllogism where “he is an animal” is mentioned explicitly (bi-l-ḥḍr) in the premises, then appears again in the consequent.

In the *Isagoge* al-Abhari outlines the two forms of valid conditional syllogisms. The first form is with an antecedent that makes a conditional statement in the form of a major premise. This is followed by a minor premise that affirms the antecedent. In Western logic, this format is known as a method of affirming (Latin, *modus ponens*).

The second valid way to construct a conditional syllogism is by positing a conditional proposition in the antecedent, then denying the consequent. If the consequent is denied then the antecedent must also be denied. In Western logic, this is known as a method of denying (Latin, *modus tollens*). In both cases there is a parallel relationship similar to the rules of conditional propositions in which affirming the antecedent results in affirming the consequent. Similarly, denying the consequent results in denying the antecedent. This parallelism is what is referred to as a *ḥaqīqīyya* (“necessary”) parallel connection between the terms of the condition in the antecedent. In debates, making an argument by denying the consequent is useful if one is trying to demonstrate the absurdity of the antecedent. This method of argumentation is known as *reductio ad absurdum*.

In addition, the affirmative and negative relationship between the antecedent and the consequent is not bidirectional. Since the consequent is universal or broader than the antecedent, an affirmation of the antecedent requires an affirmation of the consequent. But an affirmation of the consequent does not require an affirmation of the antecedent. Assuming the truth of the antecedent based on the truth of the consequent is known as the **fallacy of affirming the consequent**. The following example clarifies this:

If ‘Aisha is studying, then she is at home.

‘Aisha is studying.

Therefore, she is at home.

While the conditional statement in the major premise claims that ‘Aisha must be at home if she is studying, it does not state that she must necessarily be studying if she is at home. The conditional statement is not bidirectional. ‘Aisha can be at home doing something else, unrelated to studying. Thus, assuming that an affirmation of the consequent, “she is at home,” necessitates an affirmation of the antecedent is an invalid conclusion and falls into the fallacy of affirming the consequent.

Although al-Abhari does not mention this explicitly in the *Isagoge*, it is helpful to also consider non-conditional conjunctive syllogisms, or what is known in English logic as “conjunctive syllogisms.” **Conjunctive syllogisms** are those that have a conjunctive proposition in the major premise that states that two conjuncts cannot occur simultaneously. Rather than a format of “if A then B” that is characteristic of conjunctive conditional propositions, conjunctive syllogisms deny that

two things can be joined without placing a conditional phrase in the major premise. The minor premise then affirms or negates one of the conjuncts. For example,

No one can text and drive carefully at the same time.

Zaynab is driving carefully.

Therefore, she cannot be texting.

In the syllogism above two conjuncts are mutually exclusive, without being a conditional sentence. Furthermore, the minor premise is a selection of one of the conjuncts that leads to the consequent, thus making it a selective syllogism. However, for conjunctive syllogisms, certain rules for validity must be taken into account. First, we must consider the nature of the conjunctive proposition in the major premise. Are the two conjuncts exhaustive of any other possibilities not mentioned as conjuncts? If they are exhaustive of any other possibility other than the two conjuncts then we can either deny or affirm a conjunct in the major premise and the syllogism remains valid. For example:

‘Aisha is studying, then she is at home.

‘Aisha is not studying.

Therefore, she is not at home.

Thus, this is an invalid syllogism because ‘Aisha can be at home, but not studying. But according to the major premise, if she is studying she must be at home. However, her being at home does not mean she is studying. Assuming that a negation of the antecedent requires a negation of the consequent is another fallacy known as the **fallacy of denying the antecedent**. It is helpful to recall the two major rules discussed earlier regarding the validity of conditional syllogisms. These are

1. If the antecedent is true, the consequent must also be true. However, this is unidirectional. The truth of the consequent does not require that the antecedent also be true.
2. To negate the consequent means that the antecedent must also be negated. But to negate the antecedent does not necessarily mean the consequent must also be negated.

2. Conjunctive Syllogisms

Although al-Abhari does not mention this explicitly in the *Isagoge*, it is helpful to also consider non-conditional conjunctive syllogisms, or what is known in English logic as “conjunctive syllogisms.” **Conjunctive syllogisms** are those that have a conjunctive proposition in the major premise that states that two conjuncts cannot occur simultaneously. Rather than a format of “if A then B” that is characteristic of conjunctive conditional propositions, conjunctive syllogisms deny that

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3. Disjunctive Syllogisms

Disjunctive syllogisms are the second form of selective syllogisms that al-Abhari highlights. Recall that disjunctive propositions are types of propositions that are “either-or” statements. In a disjunctive syllogism, a major premise is composed of a disjunctive proposition and the minor premise affirms or negates one of the disjuncts in the major premise, which is a disjunctive proposition. In doing so the minor premise selects one of the disjuncts, either a or b, by saying which one (a or b) it is. Al-Abhari simplifies his discussion of disjunctive syllogisms by focusing on strong disjunctive syllogisms, without mentioning weak disjunctive syllogisms. He uses the term *ḥaqīqī* (real) to refer to what is known in English logic as “strong” disjunctives.

The Five Syllogistic Arts

[43] **Demonstration** (*burhān*) is a [type of] syllogism comprised of apodictic premises [from which] to derive certain conclusions.

[44] **Apodictic premises are divided into six categories**

[45] (1) **Axioms** (*awwalīyyāt*) like our statement, "one is half of two" or "the whole is greater than its parts."

[46] (2) **Observational Propositions** (*mushāhadāt*) like our statement, "the sun is bright," and "fire burns."

[47] (3) **Empirical Propositions** (*mujarrabāt*) like our statement, "drinks made of bindweed alleviate yellow bile."

[48] (4) **Intuitive Premises** (*hadsīyyāt*) like our statement, "the light of the moon is derived from the light of the sun."

[49] (5) **Recurrent mass transmitted** (*tawātur*) reports like our statement, "Muhammad ﷺ proclaimed his prophecy," and "miracles were performed by his hand."

[50] (6) **Innate Premises** (*fīrīyyāt*) are assertions that include syllogisms that must naturally accompany them because of a preconceived intermediate [principle] already present in the mind. For example, [we say] "four is an even [number]," because of the preconception that it [four] can be divided into two equal parts.

الصناعات الخمس

[٤٣] البرهان هو قياس مؤلف من مقدمات يقينية لإنتاج اليقين.

[٤٤] واليقينيات ستة أقسام:

[٤٥] ١ - أوليات: كقولنا: «الواحد يصفى الإنسان» و «الكل أعظم من الجزء».

[٤٦] ٢ - ومشاهدات: كقولنا: «الشمس مشرقة»، و «النار تحرق».

[٤٧] ٣ - ومجربات: كقولنا: «خرب السقمونيا يُسهل الصفراء».

[٤٨] ٤ - وعذسيات: كقولنا: «نور القمر مُستفاد من الشمس».

[٤٩] ٥ - ومتواترات: كقولنا: «مُعتد عليه الصلاة والسلام ادعى النبوة، وأظهر المعجزة على يده».

[٥٠] ٦ - وقضايا قياساتها معها: كقولنا: «الزنتة زوج» يتب ووسط حاضر في الدهن وهو الإنقسام يتساويين.

TRANSLATION

The Five Syllogistic Arts

[43] **Demonstration** (*burhān*) is a [type of] syllogism comprised of apodictic premises [from which] to derive certain conclusions.

[44] **Apodictic premises are divided into six categories**

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EXPLANATORY NOTES

The meaning of *burhān* (lit., "evidence" or "clear proof") varies based on its context. In the context of Qur'ānic studies, *al-Burhān* is another name for the Qur'ān. The Qur'ān refers to itself as *al-Burhān* (the decisive proof that elucidates right from wrong). In the context of Arabic logic, the word *burhān* represents the concept of *apodeixis*, as derived from Aristotle's *Posterior Analytics*. According to Aristotle, *apodeixis* refers to a demonstration that is a "deduction that produces knowledge."²³ Aristotle investigates how knowledge is derived to yield certainty using syllogisms. This means that not all syllogisms yield knowledge that is indisputably true if the premises are also indisputably true. As we see, some syllogisms evoke emotional responses that do not necessarily result in objectively true conclusions that result, by necessity, from unquestionably true premises. In Arabic this concept of the indisputable truth of a conclusion derived from true premises is described as *yaqīn* (Greek, *apodeixis*). An apodictic (*yaqīnī*) premise is one that is clearly established and does not require proof.

Propositions that are regarded as self-evident (*badhīyyāt*) in their truth are divided into six categories. The first are axioms (*awwalīyyāt*). Axioms are known to be true without any intermediary to bring about a conclusion. They are regarded as self-evidently true and as a starting point on which further arguments can be built. Al-Abhari provides examples such as, "one is half of two" and "the whole is greater than its parts." In both cases, the conception of the subject and predicate are sufficient to establish the veracity of these propositional statements without the necessity of further syllogistic reasoning to demonstrate its truth. That is, the examples provided are true by their very definition.

If conceiving of the subject and the predicate in its insufficient to establish the truth of a statement, then an intermediary is necessary to establish its truth. When the intermediary is an external

²³ *Stanford Encyclopedia of Philosophy*: <https://plato.stanford.edu/entries/aristotle-logic/#DemDemSci>.

sense, the proposition is known as a sensible (*hissīyya*)²⁴ proposition and when the intermediary is an internal sense derived from introspective understanding, it is known as a reflective (*wijdānīyya*) proposition. When sensible and reflective propositions combine to form self-evident truths based on perception, they are called "observational propositions" (*mushāhadāt*). Al-Abhari provides examples such as, "the sun is bright" and "fire burns." In both cases, senses lead to introspective conclusions based on observations (one senses light with the eyes or heat with the limbs and concludes that the sun is bright and fire burns).

If the intermediary in deriving a judgment is present simultaneously with the conception of the subject and predicate, then it is known as an innate premise, or a "proposition whose logical conclusion is contained within them."²⁵ In Arabic logic, these types of innate premises are referred to as *fīrīyyāt*. The text provides the following example: if we take it to be true that four is an even number, this leads to a simultaneously accepted truth that four can be divided into two even halves.

An "intuitive premise" (*hadsīyya*) is one in which a proposition does not have an obvious intermediary, yet thinking about the subject and predicate leads to an immediate intellectual connection and conclusion. That is, one naturally intuits a particular conclusion when the subject and predicate are presented. The text provides the example that the light of the moon is derived from the sun. While some may debate whether this knowledge is truly intuitive, at least without studying the natural sciences, regardless, when someone looks at the moon they generally make the connection that its light is reflected from the sun. Note that al-Abhari, who published this text almost a millennium ago, was familiar with the sophisticated tradition of astronomy in the

²⁴ In this context, sensible (*hissīyya*) refers to what is perceptible by the senses.

²⁵ Janis Esots, "al-Burhān," *Encyclopaedia Islamica*, online: https://referenceworks.brillonline.com/entries/encyclopaedia-islamica/burhan-COM_05000036?s.num=4&s.fsa_parent=s.book.encyclopaedia-islamica&s.q=al-burhan.

Muslim world of his time—and in this tradition, it was commonly accepted that the moon's light comes from the sun.

"Unanimously circulated propositions" (*mutawātīrāt*) are those in which a proposition is not intuitive or based on observation, but its truth is widespread and comes from multiple independent reports, such that the mind does not believe otherwise. Al-Abhari gives the following examples: "Muhammad proclaimed his prophethood," and "miracles were performed at his hand." The concept of *tawātur* as recurrent mass transmitted reports means that multiple independent sources could not have colluded to cite this historical information, therefore, it must have actually happened.

Finally, "empirical propositions" (*tajribīyyāt*) are those in which a proposition is known to be true not because of a multiplicity of reports but because of a multiplicity of shared experiences. Al-Abhari gives the example of the remedial qualities of a particular flower, which when made into a drink, is useful for what he refers to as "yellow bile," a form of stomach affliction. The plant referred to in the example in the text is *saqmanīyya* (*convolvulus scammonia*), known in English as scammony, or more commonly, bindweed.

Finally, Muslim philosophers divided demonstrations into two categories: *burhān innī* and *burhān limmī*. These terms were originally derived from Aristotle's *Posterior Analytics*, in which demonstrations are categorized as *quia* or *propter quid*. Demonstrations which are *burhān innī* (Latin, *quia*) are based on premises from which the effect is known before the cause. These types of arguments are commonly structured to prove the existence of God. Thus, *burhān innī* (*quia*) demonstrations (in which the effects are the premises from which the cause is derived in the conclusion) include examples such as claiming that the sophistication of the world means that the world has a creator, or claiming that smoke means that there is a fire. *Innī* is derived from the word *inna*, a proposition used to emphasize the veracity of a statement, it means, "truly it is." *Innī* was originally translated from

Aristotle's term *quia*, which roughly means "that which is because," as it implies an effect, since an effect is "that which is because" of a cause.

Burhān innī are also known as a *posteriori* demonstrations, in which an effect is "posterior" or comes after a cause.

Burhān limmī are syllogisms in which the cause is known before the effect. The cause is mentioned in the premises and leads to the effect that is in the conclusion. These demonstrations are known from the Latin *propter quid* ("cause of something"), and are referred to as *a priori* demonstrations because the cause comes prior to the effect in the syllogism. *Limmī* is derived from the word *limā* ("why"). Thus, *burhān limmī* refers to a demonstration whose premises show why an effect is the case. That is, the cause ("the why") leads to the establishment of the effect as true. By contrast, a *burhān innī* demonstration starts with the effect as being an established truth and finds its cause in the conclusion.

Burhān Innī (Quia) Demonstration

Zaynab is a lawyer.

Anyone who is a lawyer must have gone to law school.

Therefore, Zaynab went to law school.

Burhān Limmī (Propter Quid) Demonstration

Anyone who wants to be a lawyer must go to law school.

Zaynab went to law school.

Therefore, Zaynab must be a lawyer.

In the first example, the effect (Zaynab is a lawyer) is stated as fact and is used to derive the cause that leads to it (that she must have gone to law school). In the second example, the causes are presented first and lead to the effect (that Zaynab is a lawyer) in the conclusion.

Effect	→	Cause = <i>Burhān Innī (Quia)</i>
Cause	→	Effect = <i>Burhān Limmī (Propter Quid)</i>

In addition to its relevance to questions of epistemology and the knowledge of God's existence in theological (*kalām*) literature, the way in which conclusions are derived also relates to fields such as jurisprudence (*fiqh*). *Fiqh* rulings that use demonstrative proofs based on *burhān limmī* are known as *qiyās al-illa* and *fiqh* rulings derived from demonstrative proofs that are *burhān innī* are categorized as *qiyās al-dalāla*.²⁶

²⁶ Yusuf Şevki Yavuz, "Burhan," in *İslam Ansiklopedisi* (İstanbul: Türkiye Diyanet Vakfı, 1988), 6:429–430.

[51] **Dialectic** (*jadaf*) is a syllogism composed of premises that are commonly accepted [as true].

[52] **Rhetoric** (*khafāba*) is a syllogism composed of premises accepted from a credible individual or [one whose opinions] are preferred.

[53] **Poetics** (*shī'r*) are syllogisms composed of premises that bring joy to the heart or [cause it to] contract.

[54] **Sophistry** (*mughālaḥa*) are syllogisms composed of false premises that resemble the truth or commonly accepted [matters], or [they could be composed of] premises [based on] delusions [or superstitions] (*waḥm*).

[55] The reliable [syllogism, in terms of accuracy and truth] is that of **demonstrative** [proofs] (*ḥukmān*), nothing else. This is the end of the epistle on logic.

[٥١] وَالْجَدَافُ: وَهُوَ قِيَاسٌ مُؤَلَّفٌ مِنْ مُقَدِّمَاتٍ مَشْهُورَةٍ.

[٥٢] وَالْخَفَافَةُ: وَهِيَ قِيَاسٌ مُؤَلَّفٌ مِنْ مُقَدِّمَاتٍ مَلُوقِيَةٍ مِنْ تَخْلِصِ مُتَعَقِّدٍ

فِيهِ، أَوْ مَطْلُوبَةٍ.

[٥٣] وَالشِّعْرُ: وَهُوَ قِيَاسٌ مُؤَلَّفٌ مِنْ مُقَدِّمَاتٍ تَنْبِيْطٌ مِنْهَا النَّقْشُ أَوْ

تَنْقِيشٌ.

[٥٤] وَالْمُغَالَاظَةُ: وَهِيَ قِيَاسٌ مُؤَلَّفٌ مِنْ مُقَدِّمَاتٍ كَاذِبَةٍ كَسِبْهَةٍ بِالْحَقِّ أَوْ

بِالْمَشْهُورَةِ، أَوْ مِنْ مُقَدِّمَاتٍ وَاقِعِيَّةٍ كَاذِبَةٍ.

[٥٥] وَالْمُنْدَادُ هُوَ الْبَرْهَانُ لَا يَحْتَجُّ، وَلَيْسَ كُنْ حَدًّا أَعِزَّ الرِّسَالَةِ فِي الْمَطْلُوعِ.

TRANSLATION

[51] **Dialectic** (*jadaf*) is a syllogism composed of premises that are commonly accepted [as true].

[52] **Rhetoric** (*khafāba*) is a syllogism composed of premises accepted from a credible individual or [one whose opinions] are preferred.

[53] **Poetics** (*shī'r*) are syllogisms composed of premises that bring joy to the heart or [cause it to] contract.

[54] **Sophistry** (*mughālaḥa*) are syllogisms composed of false premises that resemble the truth or commonly accepted [matters], or [they could be composed of] premises [based on] delusions [or superstitions] (*waḥm*).

[55] The reliable [syllogism, in terms of accuracy and truth] is that of **demonstrative** [proofs] (*ḥukmān*), nothing else. This is the end of the epistle on logic.

EXPLANATORY NOTES

Dialectic (*Jadaf*)

Dialectic (*jadaf*) is described as an argument based on premises that may not necessarily be true; however, they are commonly held to be true by the target audience. This idea of commonly held opinions is derived from Aristotle's concept of *endoxa* described in his *Topics* as ideas that are so well-established that they do not require examination. Commentaries on al-Abhari's *Isagoge* categorize these types of beliefs into the following:

[a] **Beliefs related to the greater good, such as justice is good and oppression is wrong.**

[b] **Beliefs regarding compassion and kindness, such as, "generosity toward the poor is praiseworthy," or "it is a duty to take care of the weak."**

[c] **Beliefs related to safety, such as, "protecting one's household is necessary," or "revealing one's nakedness in public is blameworthy."**

[d] **Beliefs derived from customary practice, such as, meat consumption is reprehensible for some while it is the norm for others.**

This form of syllogism differs from syllogisms based on demonstrative proof (*ḥukmān*) in key aspects, one of which is in the reliability of the truth on which the premises are based. In the absence of clearly established forms of demonstrative proofs, an individual engages in dialectic or debate with the intent of silencing or persuading his opponent by referencing commonly held opinions. This form of argumentation is weak because of the subjective nature of these opinions, because in order to be effective, they rely on assumptions that the audience must also share. The absence of an objectively verifiable statement in the form of demonstration makes these types of arguments vulnerable to deconstruction once the cognitive frameworks on which these arguments are made are shown to be faulty, or relative to one's perspective.

Rhetoric (*khafāba*)

Al-Abhari describes rhetoric as a form of persuasive speech in which the premises for one's argument are based on religious or dogmatic beliefs, such as the belief in miracles, the acceptance of scriptures as being derived from God's speech, or the miraculous feats of saints (*ḥurūmāt al-awliyāʾ*). Alternatively, rhetoric (*khafāba*) can assume the truth of premises based on an appeal to commonly accepted

authorities or experts (e.g., religious scholars, scientists, physicians, specialists in a particular field, or individuals regarded as saints with special gnostic capacities).²⁷

The weakness of this approach is its reliance on the uniformity of the beliefs of the audience and those making the argument. The premises of the argument may not hold true to those who do not share common religious beliefs or who do not have confidence in the same expert authorities. The word for a religious sermon in Arabic is *khutba*, which shares the same root as *khafāba*. The type of speech in a *khutba* is one in which the speaker evokes shared religious beliefs with the audience; this enables him to persuade them or to move their hearts. Such a form of persuasive speech, however, may be less effective when addressed to those of other faiths.

Poetry (*Shī'r*)

Poetry is composed of statements intended to spark the listeners' imagination by evoking emotional responses. Sometimes metaphors or similes are used, such as "roses are like rubies that emerge from the earth," or "her words pierced his heart like a dagger." Both phrases evoke an emotional response. Such creative language need not necessarily be false in their broader meaning. They may be false or true statements that are intended to rouse an audience's sentiment to make them partial to a particular opinion on an issue. This style can be presented in rhyme, prose, song, or speech.

Commentators on the *Isagoge* have raised the question as to whether imaginative words can be considered syllogisms. For instance, some may respond to this concern by saying that it is considered a form of persuasion and therefore, it is another way of making a case or arguing for a matter. Rather than appealing to the intellect, it appeals to the emotions because human emotions can persuade or dissuade people.²⁸

²⁷ Maḥmūd Ḥasan al-Maghribī, *Maḥāsin al-faḥḥ* (Damascus: Dār al-Bayrut, 2009), 249–252.

²⁸ al-Maghribī, *Maḥāsin al-faḥḥ*, 252.

For example, in the United States during the 1960s and 1970s, songs of protest were used by anti-war activists. Pep rallies for sports teams or battle music (e.g., the use of the *mehter* band by Ottomans during battles) are examples of this use of poetics to evoke specific emotions or opinions. National anthems are contemporary methods of strengthening a communal identity based on what are often carefully selected historical narratives, or myths, in the words of these songs. Other examples of the use of emotive language to elicit a sentimental response of anger, passion, or blind commitment can take the form of polemics. Polemical speeches may be political, religious, or other forms of divisive speech that create a strong supportive reaction in listeners.

More positive religiously-themed poetry takes the form of *mawālid* (sung to evoke love for the Prophet Muḥammad during the celebration of his birth); these *mawālid* engender a sense of communal devotion and individual belief in his prophecy. Similarly, among Shīʿī Muslims in particular, poetic recitations recalling the painful events of Karbala remind listeners of the tragedy of that day.

Sophistry (*Mughālaḥa*)

Sophistry is the use of arguments to influence opinion with premises based on logical fallacies that may appear to be true, or with deceptive statements. These types of false premises are not descriptions of senses or emotions, since describing matters that cannot be verified or denied does not fall under the types of sophistic statements mentioned.²⁹

The term "sophistry" originates from Aristotle's *Sophistical Refutations*, in which he writes about false arguments that are commonly used to mislead listeners. During his time, individuals known as sophists used to perform these types of linguistic maneuverings for entertainment. Arabic logicians including al-Fārābī and Ibn Sīnā wrote commentaries on Aristotle's *Sophistical Refutations*; they translated this concept as *mughālaḥa* or *ṣafṣaṭa*. *Mughālaḥa* (from the root gh-l-ḥ)

²⁹ Ibid., 252–253.

implies something that is incorrect, in this case incorrect arguments. *Ṣafṣaṭa* is a form of the word *ṣafṣaṭūyya*; this is the term "sophistry" that appears in Aristotle's works and found its way into Islamic philosophy and logic.

The aim of such syllogisms is to manipulate language to misrepresent the truth, defeat an opponent in debate through word tricks, or appeal to commonly-held prejudices and desires to influence opinion rather than present rational arguments. Such speech is often used in political contexts to rally support or in polemics to promote an ideological position with aggressive appeals to emotion and reliance on logical fallacies.³⁰

Ibn Sīnā wrote in his *Shāfiʿ* that those who engage in sophistry (*mughālaḥa*) do so for three reasons: (1) Despite seeking the truth, they fall into logical fallacies because they have an insufficient understanding of sound arguments; (2) In order to defeat an opponent in a debate, they manipulate language or engage in deceptive games of logic; or (3) They want to appear knowledgeable about a matter and use demagoguery and logical fallacies to feign expertise.³¹

Samples of Logical Fallacies

1) **Equivocation** involves using a word in different ways throughout an argument. A word with multiple meanings, but which is consistently used in an argument with only one meaning, is said to be used univocally.

Example: Only man [humans] is rational, and no woman is a man [male], therefore, no woman is rational.

Here the word "man" may refer to humanity, or it may refer to the male human being. In this argument, in order to conclude that

no woman is rational, there is a shift from the definition of "man" as a reference to humanity to "man" as a male.

2) **Straw Man arguments** are those that intentionally misrepresent the argument of one's opponent to make it seem ridiculous and/or to make it easier to rebut. Hence, one is creating a "straw man" that is easily brought down.

Example: Society must support its needy population by providing free access to healthcare and education, which are not readily available because the system limits opportunities for some members.

Straw man: You say that society should give free benefits to people without their working for it. Such a practice would encourage apathy and prevent people from striving to succeed.

3) **Ad Hominem** (Latin, "to the man") arguments are those in which one personally attacks the man or woman making the argument rather than engaging with the argument itself.

Example: We are postponing our trip because of the impact of war on safety conditions in the countries we planned to visit.

Ad hominem: You are postponing the trip because you prefer to stay at home.

While it may be true, validly engaging an argument entails responding to the cause provided by the claimant, which in this case is safety on the trip. Attacking the opponent's motives does not disprove the argument and invalidates the response of the respondent.

4) **No True Scotsman** arguments are fallacies that occur when a claim is made about a mutually agreed on group of things or individuals. Rather than disputing the claim itself, the opponent engaging in this fallacy changes the terms of membership in this group.

Example: Californians have difficulty adjusting to Chicago winters.

But, Nilüfer is a Californian and she had no problem adjusting to Chicago winters.

No True Scotsman: Yes, but Nilüfer is not a real Californian.

Here there is ambiguity over the definition of a Californian. This means that when contradictory evidence is presented, rather than readjusting her position, the claimant redefines who belongs in the group she is referring to.

5) **Not a Cause for a Cause** fallacy occurs when two events or things that may coincidentally overlap are assumed to have a causal relationship, when in fact their connection is only incidental.

Example: According to Ibn Kathīr's *Bidāya wa-l-nihāya*, a solar eclipse occurred right after the death of the Prophet's son, Ibrahim.

Not a Cause for a Cause: Some people said this is a sign from God for humans to mourn the Prophet's son. The Prophet responded to this by saying, the moon and the sun do not eclipse because of the life or death of any individual. That is, the relationship was deemed incidental and not "a cause for a cause."

Another example: Everyone who passed the exam attended the gathering last night. Therefore, whoever attends this gathering before an exam will pass the exam.

'Ali: This is not a cause for a cause. People who attended the gathering just happened to also study for and take the exam. They did not pass because of their presence at the meeting.

6) **Appeal to Fear** fallacy occurs when someone appeals to the fears of a group or an individual to persuade them rather using evidence. Example: Vote for my party's candidate for presidency. If the other candidate becomes president, she will raise taxes and repeal social security.

This argument uses fear to persuade a group into an action rather than presenting evidence that demonstrates that the candidate they support is the best person for the task.

7) **Guilt by Association** is an attempt to discredit an opponent's argument by indicating his association with a guilty party or detested group.

Example: The study of logic is wrong because it entered Islamic thought through philosophers who were heretics.

Such an argument is invalid because it assumes that the audience discredits philosophers for reasons of heresy and then it uses this bias to persuade the audience to be biased against a field of study associated with this group. The argument does not present any evidence pertaining to logic itself and does not offer reasons against its study.

8) **A False Dilemma** fallacy presents a limited set of options for the audience to select from, a set of options that is not in fact exhaustive of all of the possibilities. So the claimant creates a false dilemma by saying that one can only choose between a given set of options when in fact there are other options beyond this set.

Example: 'Ali must either attend college or be unemployed. The above argument does not assume any possibilities beyond these two options. 'Ali could find gainful employment without going to college.

9) **An Appeal to the Bandwagon** argument presents the number of people who believe in something as evidence that it must be true. Example: If you want to have peace at home, make ginger tea for the family every Friday. Everyone in the neighborhood does this for the same purpose.

The fact that "everyone" (or a number of people) does something does not make it true.

10) **An Appeal to Irrelevant Authority** fallacy occurs when a claimant uses a respected authority to support his argument even though the position of this authority figure is not relevant to the argument he is being used to support; this may be because he lacks the expertise in the matter he is being connected to or because his authority and/or popularity is unrelated to the topic under discussion.

Example: Imam 'Umar, our beloved leader, said this flu medicine is the best in town.

Unless this spiritual leader also happens to be a medical practitioner with knowledge of medicines, using an audience's respect for him to persuade them about the quality of a cold medicine does not support the claimant's argument. The imam's religious authority is irrelevant in determining the best pharmaceutical products.

³⁰ Maḥmūd Kaya, "Mughālaḥa," in *Islam Anasiksepedisi* (Istanbul: Türkiye Diyanet Vakfı, 2088), 30372–373.

³¹ Ibid.